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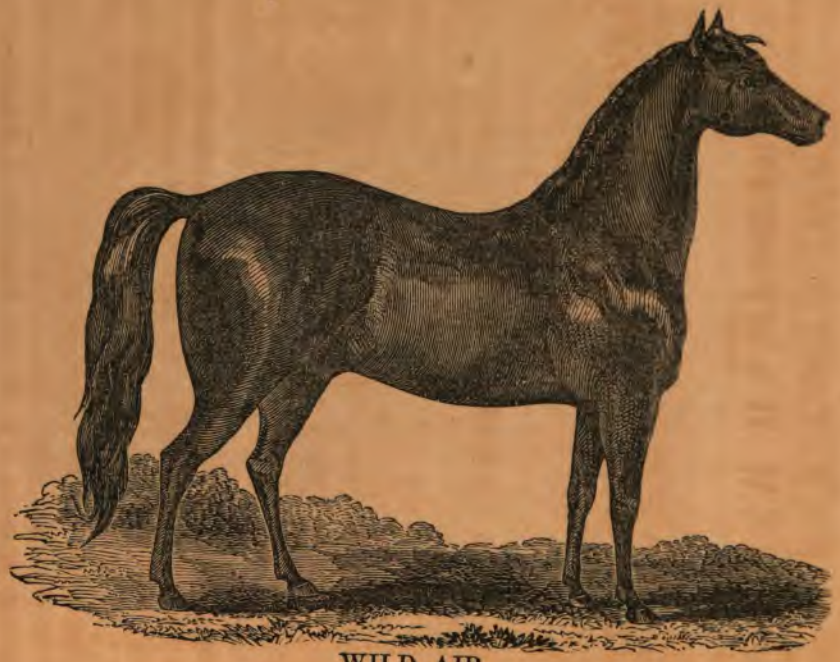

WILD AIR.

TRANSACTIONS

OF THE

NEW HAMPSHIRE

STATE AGRICULTURAL SOCIETY,

FOR THE YEAR

1854,

WITH A REPORT OF THE SECRETARY, AND CONDENSED REPORTS OF THE PROCEEDINGS OF THE COUNTY SOCIETIES.

EDITED BY JAMES O. ADAMS, SECRETARY OF STATE SOCIETY.

CONCORD:
AMOS HADLEY, STATE PRINTER.
1855.

Sci 1636.33

1858 June 30
Gift of
Charles Lewis Flint
Class of 1849
Secretary of the
Massachusetts Board of Agriculture

SECRETARY'S NOTICE.

The third volume of the Transactions of the State Agricultural Society, which is now presented to the public, affords renewed evidence of the Society's prosperity and usefulness. With many imperfections, and some matter which may be deemed quite destitute of interest, the volume contains a great amount of practical agricultural information, which, with much care and labor, and at no little personal sacrifice, has been collected from reliable sources.

For much of the material from which these pages have been compiled, we are under obligations to a few ever-active friends of the Society and of agricultural improvement in the State. They have responded promptly to our requests and offered many voluntary contributions to the permanent papers of the Association.

While the reports in this volume relative to the various departments of the Fair are not as full as they have been in some previous years, it is believed that the essays, the correspondence, the statistical matter, and the reports of practical experiments are of superior value and well calculated to claim the earnest attention of the farmers of New Hampshire.

With these suggestions we submit the following pages to the public, trusting that the labor expended upon them will not be in vain.

JAMES O. ADAMS, *Secretary.*

Manchester, May 1, 1855.

LIFE MEMBERSHIPS AND DONATIONS.

The payment of $25 constitutes Life Membership, and exempts the donor from the annual one dollar assessment. The following sums have been paid to the Treasurer of the Society:

Asylum for Insane, by Andrew McFarland,	$26 00
Abraham Bean, Concord,	5 00
Baruch Biddle, Concord,	6 00
Stephen Brown, Concord,	3 00
J. A. Burleigh, Great Falls,	5 00
Dixi Crosby, Hanover,	15 00
Abel Chase, Milford,	10 00
David Gillis, Manchester,	10 00
Ichabod Goodwin, Portsmouth,	25 00
George W. Nesmith, Franklin,	20 00
Franklin Pierce, Concord,	10 00
J. Hamilton Shapley, Exeter,	5 00
James M. Whiton, Holderness,	50 00

OFFICERS OF THE SOCIETY,

FROM

ITS ORGANIZATION TO THE PRESENT TIME.

PRESIDENTS.

George W. Nesmith, Franklin,	from	1849 to 1852
Peter P. Woodbury, Bedford,	"	1852 " 1854
Nathaniel B. Baker, Concord,	"	1854

VICE PRESIDENTS.

Peter P. Woodbury, Hillsboro' Co.,	from	1849 to 1851
John H. Steele, " "	"	1851 " 1853
Hiram A. Daniels, " "	"	1853
William Choate, Rockingham County	"	1849 to 1851
Henry F. French, " "	"	1851 " 1852
Joseph Cilley, " "	"	1852 " 1853
Joseph L. Cilley, " "	"	1853 " 1854
Josiah C. Eastman, " "	"	1854
Salma Hale, Cheshire County,	from	1849 " 1850
Benaiah Cooke, " "	"	1850 " 1851
David Buffum, " "	"	1851 " 1853
Milan Harris, " "	"	1853

Ezra J. Glidden, Sullivan County, from				**1849 to 1850**
Robert Elwell,	"	"	"	**1850 " 1851**
Ruel Durkee,	"	"	"	**1851 " 1852**
Austin Corbin,	"	"	"	**1852 " 1853**
Wm. R. Kimball,	"	"	"	**1853 " 1854**
John S. Walker,	"	"	"	**1854**
Asa P. Cate, Merrimack County, from				**1849 to 1850**
Levi Bartlett,	"	"	"	**1850 " 1853**
Thomas Little,	"	"	"	1853 " 1854
Richard Bradley,	"	"	"	1854
Noah Martin, Strafford County, from				1849 " 1851
Wm. F. Estes,	"	"	"	1851 " 1852
William Haile,	"	"	"	1852 " 1853
Jeremiah Roberts,	"	"	"	1853
Samuel Webster, Belknap County, from				1849 " 1850
Thomas Cogswell,	"	"	"	1850 " 1851
Samuel Tilton,	"	"	"	1851 " 1852
Samuel Bean,	"	"	"	1852 " 1853
Dana Woodman	"	"	"	1853 " 1854
Rufus G. Lewis,	"	"	"	1854
Benning M. Bean, Carroll County, from				1849 " 1850
Joseph Wentworth,	"	"	"	1850 " 1851
Oliver Hill,	"	"	"	1851 " 1852
Samuel Bean,	"	"	"	1852 " 1853
Joel Eastman,	"	"	"	1853 " 1854
Cyrus K. Drake,	"	"	"	1854
Nathaniel Hurlburt, Grafton County, from				1849 " 1851
Joseph Sawyer,	"	"	"	1851 " 1852
Asa B. Closson,	"	"	"	1852 " 1853
Thomas Merrill,	"	"	"	1853 " 1854
Levi Parker,	"	"	"	1854
John H. White, Coos County, from				1849 " 1850
James M. Rix,	"	"	"	1850 " 1851
Simeon Warner,	"	"	"	1851 " 1852
John P. Pitman,	"	"	"	1852 " 1853
John H. White,	"	"	"	1854

EXECUTIVE COMMITTEES.

A. O. Brewster, Hanover,	1849 to 1851
Josiah Stevens, Concord,	1849 " 1850
Adam Chandler, Bedford,	1849 " 1850
Joseph Sawyer, Piermont,	1849 " 1850
Israel Hunt, Nashua,	1849 " 1851
Asa P. Cate, Northfield,	1850 " 1852
Wm. W. Rollins, Rollinsford,	1850 " 1851
Moses Fellows, Manchester,	1850 " 1851
William Haile, Barrington,	1851 " 1852
Benaiah Cooke, Keene,	1851 " 1852
John C. Wadleigh, Meredith,	1851 " 1852
Enoch Marsh, Pelham,	1851 " 1852
Henry F. French, Exeter,	1852 " 1854
John Wadleigh, Meredith,	1852 " 1853
Thomas H. Leverett, Keene,	1852 " 1853
Nathaniel B. Baker, Concord,	1852 " 1853
William Tenney, Hanover,	1852 " 1854
Ezra J. Glidden, Unity,	1853
Brooks Shattuck, Bedford,	1853
Joseph Robinson, Concord,	1853 " 1854
Geo. O. Hilton, South New Market,	1854
David Buffum, Walpole,	1854
Wm. S. Curtice, Danbury,	1854

SECRETARIES.

John S. Walker, Claremont,	1849 to 1853
James O. Adams, Manchester,	1853

TREASURERS.

Nathaniel B. Baker, Concord,	1849 to 1851
Frederick Smyth, Manchester,	1851

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President, countersigned by the Secretary, and shall make a report of the receipts and expenditures at the regular annual meeting, and shall give a bond for the faithful performance of his duty, if required by the Executive Committee.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c., which may be transmitted to the Society, and shall also have charge of all communications designed for publication, and so far as they shall judge expedient, shall arrange and publish the same in such manner and form as they shall deem best calculated to promote the object of the Society.

The Vice Presidents are charged with the interests of the Society in the counties where they shall respectively reside, and will be a medium of communication between distant members of the Society and the Secretary or Treasurer.

SEC. 4. There shall be an annual meeting of the Society, at such time and place, during the holding of the annual fair, as the Executive Committee shall direct, when all the officers shall be elected by a plurality of votes and by ballot.

Extra meetings may be convened by the Executive Committee—three of whom shall be a quorum for the transaction of business.

SEC. 5. The Society shall hold an annual fair and cattle show, at such time and place as shall be designated by the Executive Committee.

SEC. 6. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

TRANSACTIONS

OF THE

N. H. STATE AGRICULTURAL SOCIETY.

REPORT.

The sessions of the Executive Board during the past year have been few and short. The officers have consumed no time in the discussion of unprofitable questions, and expended none of the Society's funds in experiments of doubtful utility. Their economy of time and money has been, perhaps, their greatest fault. More liberal expenditures in the right direction, increased personal efforts in collecting and disseminating practical information among the people, a systematic investigation of subjects pertaining to the interest we would encourage, might be productive of greater good to the Society, and contribute essentially to elevate the condition of Agriculture throughout the State.

But the committee are limited in their pecuniary resources, and consequently cannot employ those agencies which are so essential to the accomplishment of any object. To perform, individually, all that the cause demands—to make experiments and report results—to investigate the causes of success and failure—to keep pace with the progress of agriculture in each section of the State, and to be familiar with the farming operations, generally,—is requiring a greater service than will be rendered gratuitously by

entering farms, gardens, orchards and fruit nurseries, according to the requirements of the Examining Committee.

Those presenting milch cows, must make a certified statement of their manner of feeding, the number of pounds of milk yielded daily, at two separate trials, to be designated by the Executive Board,—and no awards will be paid except such statement be made.

Statements by those presenting fat cattle or sheep must be made of the amount of extra feeding, if the animals are not fattened exclusively on grass, giving the kind of feed used, the length of time fed, with the grain in any given time. Animals exhibited in pairs cannot compete for single premiums.

Full statements are also required on field crops, of all kinds, fruit, vegetables, butter, cheese, bread, maple sugar, &c.

THE FAIR.

When it had been decided to hold the Fair at Keene, THOMAS H. LEVERETT, Esq., was appointed local Superintendent under whose management the preliminary arrangements were made, and were in the highest degree satisfactory.

The ground selected for the exhibition, was a level plain about one mile north-west of the railroad station. An area of twenty-five acres, two sides of which were protected from the sun and wind by thick pines, was substantially enclosed and furnished with water, a handsome trotting course, stalls and pens, and supplied with all the conveniences for the accommodation of exhibitors and visitors. A large building was erected, four hundred feet in length, with three rows of counters, and sufficiently commodious for the arrangement and display of all machinery, implements, farm products, manufactures, fancy articles, &c., &c. This was so constructed as to afford perfect security from the weather in case of a storm or excessive heat. This precaution proved very serviceable, as intermitting showers of rain began to fall on Tuesday afternoon, the first day, out of an atmosphere threatening protracted damp, and continued all day and night. This discouraging appearance of the weather, no doubt, had a tendency to prevent the attendance of many who had designed to come from great distance to visit the exhibition. But notwithstanding, the trains of that afternoon were crowded with visitors, and the freight cars heavy with contributions. All the hotels were full from cellar to garret, and private hos-

pitality had many claims upon its dispensation which were cheerfully recognized.

The day was assigned to making entries, and, at the closing of the business office at night, there was a larger list of animals entered on the Secretary's books, than at any preceding Fair of the Society. With a few that came in the next morning the whole number on the ground and ready to be brought in as soon as the weather would permit was near thirteen hundred.

The entries of articles of domestic manufacture, machinery, fruits, vegetables, butter, cheese and honey, exceeded one thousand.

The Society held a meeting in the Court House at half past 7 o'clock, for the purpose of filling vacancies in the lists of Judges, in which some progress was made, and the final arrangement of this matter deferred until next morning at 8 o'clock.

President Woodbury—the business being concluded—invited gentlemen present to discuss some matter of farming practice; whereupon Mr. Coffin, of Concord, suggested the consideration of experiments made with guano, with the view to call forth information as to its value as a fertilizer—efficacy and permanency considered. He stated his experimental knowledge to have been limited; and that, from what it had, so far, taught him, he was not prepared to look upon it as an article on which great reliance could be placed.

Mr. Harris, of Harrisville, by request, delivered his opinion on the subject. He had used guano as a manure for two seasons past; but misfortune had interfered, both years, to hinder a fair test. What general notion he had formed of the manure was favorable to its use. He earnestly recommended it for corn and potatoes—with the proviso that it should never be allowed to come into direct contact with the roots of the young plants. The method

he had followed was to put a large spoonful in a hill of corn or potatoes, and to hoe at least an inch of soil over it. More soil, he thought would be beneficial as a covering; for, if the young shoot penetrated into the guano at a tender stage of its growth, it would be apt to suffer from the contact.

Gen. Riddle of Manchester, said he could not just then spare the time to give details of use of guano, and the rerults, but would give a brief account of some experiments he had made with lime, bones, and ashes. In 1853 he applied to an acre, 40 bushels of oyster shell lime; to another, he applied saw dust, saturated with a lye made from soda ash, a bushel to a square rod; and still another acre, with leached ashes, a bushel to a square rod. The produce of rye, per acre, was 12 bushels where the lime and dust was applied, and 6 bushels on the other. He had applied this lye in its liquid state—some on the snow, and some on the bare grass ground. Where the ground was bare, it killed the grass; but where it was applied on the snow, and as the snow melted, it was gradually absorbed by the earth, the grass was very large. This lye costs about two shillings a hogshead.

Last year he made examination of the superphosphate of lime, and found it nothing but dissolved bones. He then took 60 gallons of lye from oyster shell lime, to two hundred pounds of bones, and boiled them together a few hours, and the bones were all dissolved, or reduced to a powder. A bushel of lime will make 6 gallons of lye—cost of lime, 10 cents a bushel. Bones, dissolved, or reduced in this lye, make a dry powder, and can be applied like ashes. He put a gill of this powder to a hill, on 20 rows of corn, and omitted it on 5 rows through the field. There was an astonishing difference in the appearance of those different portions of the field. The corn, where the bone dust was applied, was much the largest, and of a far deeper green in color. He should think it was double in quantity in crop. The land was light and dry, and had

been planted four years without any other manure than lime and ashes. He has a piece of land which has been in cultivation, in corn or rye, for forty years. To an acre of rye on this land, he spread bone dust and 25 bushels of oyster-shell lime, last fall. The effect was surprising upon the looks of the rye. He had applied a hundred bushels of oyster-shell lime to an acre and it did not kill, but increased vegetation rapidly in growth. This salt lye will kill grass, if applied upon the bare ground.

Saw dust saturated with the salt lye, applied in the hill, killed corn. He considers leached ashes worth as much as unleached for manure. Gen. R. said he sold the bone dust at 15 cents per bushel, or $8 per ton; and that on his light land he had rather have a ton of this mixture than a ton of guano, in a dry season, especially. He had tried the liquid from the gas works, and thought that it might be valuable for manure used in compost.

On the morning of the second day, the officers and a large number of the members of the Society, assembled at the business office and on the show ground, but the opening of proceedings was attended with such a deluging rain as sent every thing under cover, scattering many to their homes. Nothing was accomplished until 11 o'clock, when the clouds partially cleared away, the boards of Judges were filled, and the duties of examination commenced.

The accompanying account of the animals exhibited and of the in-doors show, is a portion of the report made on the ground by Col. John C. Moore, who is well known to Fair-going people as a reporter. The officers of the Society not being able to make a personal examination of the various departments of the Fair, regard the report of one entirely disinterested as preferable to any which they could present.

THE HORSES.—This department was not so well filled as some of the others; but the stock exhibited was excellent. The young stock was of superior promise, which is

a great point of improvement. The Ashuelot Morgan, which took the first prize for stallions, had some of his progeny along with him which threaten to place the paternal merits in the shade. The Morgan mare belonging to E. Pike, of Cornish, which took the first prize, is a fine animal. She is 17 years of age, and the foal at her side was her eleventh. Her dam was directly from the old Justin Morgan horse, and she herself from the Morgan Emperor. This mare took the first premium at the Vermont State Fair, at Brattleboro'. We have seen a better collection of brood mares; but the show at our late Fair was far from being meagre, or lacking in interest. Had the weather been fine at the commencement of the proceedings, the numbers and reputation of each section would have been much greater. Some very fine matched pairs were exhibited, as also a few geldings of fine proportions and properties of strength and speed. Among these were sundry young horses which bid fair to do execution about the smaller end of the two-thirties.

Working Oxen.—The working cattle constituted the great feature of the fair. The county teams were beautifully matched in every point of symmetry, and very generally in color. All were in fine condition—perhaps rather too fat for heavy work. We are requested to copy the following remarks from a contemporary, as containing matter for serious consideration with our farmers. Without endorsing its opinions we may mention that the county societies in many instances within the borders of New England, and in more without its bounds, give no prizes for graded stock, for similar reasons as these laid down by the party from whom we take our quotation.

"One thing we humbly think constitutes a defect in the system of breeding yoke cattle; that is, the system of crossing, or grading. With the producing material the farmers of New Hampshire now seem to favor, they never can rely on their individual stocks for well matched cattle,

as respects both shape and color. Where two very distinct bloods are fused in one breeding stock, the produce will tend to one or the other side, as circumstances may influence. Certainly, no management within the power of the breeder can prevent eccentricity in shape or in color, which will make matching, within his stock, an impossibility. Perhaps the New Hampshire Society might do worse than give the subject a thought. There are Devon, Durham, Ayrshire and native cattle plenty in the State. Each, of all, of these may be best suited to certain localities, and their physical circumstances. To discover these, and the adaptability of distinct breeds to each, is a duty which scientific and safe management must ultimately constitute an incumbency. But we suggest this proceeding with deference to such practical arguments as may be advanced in opposition."

MILK COWS.—The number of pure milch cattle on exhibition was not so large as we had expected. The best on show were the Devons. Good judges made many exceptions to the Durham cows on the score of their impurity. But few Ayrshires were on hand, and no Alderneys—a stock which, they said, was peculiarly well calculated for this district of the State. The grade cows were very dissimilar in color and proportion, and, we are informed, in productive properties. We humbly begin to imagine, that the system of crossing may not be such a good one after all —especially when followed for breeding purposes. Keeping away from the county teams, and taking those of individuals into consideration, the want of uniformity in color and physical properties, we think, manifests in a degree the impropriety of breeding from graded stock. Cannot size and activity in working cattle be secured through the cultivation of a pure stock? Are not the hereditary properties of milk more sure in purely bred cattle?

SHEEP.—The entries of sheep included 133 animals—many of them of great value. The merinos and their

crosses were pronounced very fine, as also the Cotswolds—several pens of which were on the field. Some noble merino bucks attracted attention from their size and symmetry. One French merino, 2 years old, owned by George P. Haven weighed 200 lbs., and some others were not much short of that weight. If we cannot just yet cope with sister Vermont in the matter of sheep culture, we have at least showed her that we are willing to emulate her excellency in this particular.

SWINE.—This department embraces about 100 items, principally crosses, and all fine animals. The most interesting detail in this section was the imported Suffolks exhibited by J. M. Whiton, of Holderness, and the pens belonging to John Lawrence, of Keene, which were unexceptionably fine animals.

POULTRY.—We have the authority of the Secretary of the "Hen Society" of New England in stating that the exhibition of fowls was more than respectable in almost every detail. The prize Shanghae fowls were the finest which have been exhibited at any country show he has visited, where poultry raising has been a feature of the rural economy of the district. The prejudice against eastern fowls would not have had an existence, had speculation and trickery not forced upon public credulity long-legged, and crane-necked frights as the genuine—which the prize lot were. The Bolton greys, and the native fowls, also the turkeys and geese were all very superior.

HORTICULTURAL DEPARTMENT.—The fruits and vegetables were exceedingly fine—especially the former—which had no equal as an exhibition out of the line of the Horticultural Society's show on Boston Common this year. True, shows have been larger this year in several places, but none with the exception mentioned (and perhaps a few more varieties included) have shown a greater or more discriminating attention to pomology.

AGRICULTURAL DEPARTMENT — MACHINERY, &c.—Specific

notice is not demanded of us in connection with more than a few particulars in this department,—not that the exhibition was by any means meagre—but because the bulk of the contributions was composed of hitherto well known implements.

Among the implements thus exhibited were some of recent invention, and of the utility of which no one who examined them can entertain a doubt. One was a patent self-acting corn planter, which a person takes in his hand as he would a cane, marches through his field, sticks his "planter" into the hill, and deposits the seed. The labor of covering is entirely dispensed with. The machine can be so arranged as to deposit any required quantity of seed, from two kernels to a handful, and the person using it can see the seed as it passes from the "hopper" to the earth.

Another machine, which looks as though it would work, is a potato digger. A spade-shaped blade is so arranged as to pass below the hill, throwing the potato and earth on to a beam fitted with wire teeth, which separates the potatoes from the soil and leaves them ready for a man to pick up. It will dig five bushels a minute. Charles H. Dana, of West Lebanon, is the patentee and exhibitor of both these implements.

Ketchum's one and two horse mowing machines were on exhibition by Ruggles, Nourse & Mason, of Quincy Hall Agricultural Warehouse, Boston, who also had a large assortment of plows, straw-cutters, churns and other articles on hand. The mowing machines, the proprietors say are capable of cutting and spreading with one span of horses and driver, from ten to fifteen acres per day of *any kind of grass, heavy or light, lodged or standing;* and do it as well as is done with a scythe by the best mowers. By the addition of certain apparatus, which can be easily attached, the machines can be adapted for reaping. They were inspected by crowds during the continuance of the Fair.

Fisk Russell, of North Market Street, Boston, also showed his machine, and claims for it a decided superiority in ease of draft and facility of management. It forms a carriage of itself, and can be moved about from place to place with the same ease as a one horse cart. The machine consists of a square frame mounted on two wheels, one of them being a heavy cast-iron wheel, from which the motive power is derived.

N. W. Cilley, of Nottingham, had one of his patent farm gates on the field. It is suspended by parallel levers, or braces, attached to the posts and gates, which keep the latter from touching the ground when sliding along in opening or closing. Its properties are said to be—the requirement of little space in the operation of opening or shutting, its non-liability to sag, so as to come in contact with the ground, or to be obstructed by the snow in winter, and lastly, its cheapness — the highest price being $5, and thence downward to $3, according to size. This seemed a very simple and clever invention, and has been very extensively approved.

S. Davis, Claremont, exhibited his patent platform beehive, the properties of which are — the prevention of swarming, protection secured against the bee-moth, ease of adaptation for feeding, &c.

Gale's Eagle straw, hay, and corn-stalk cutter, shown by Nourse & Co., Commercial Street, Boston, was on trial more repeatedly than any other machine on the ground. It has only one knife on the cylinder, and yet its speed is greater than any we have seen, and its work second to none. It operates on green as well as dried fodder; and has met with general approval wherever it has been tested. Thousands tried their hands at its use, and spoke their satisfaction with its ease and efficiency of operation. The same parties also exhibited a portable cider-mill, and a variety of other machines which have been known to the agricultural world for some time past.

Some valuable improvements on engine and hand turning lathes were exhibited by Charles Buss, Marlboro.

Messrs. Norwood & Weeks, of Keene, had on exhibition a fine assortment of cooking and parlor stoves of the newest and choicest styles, and with all the modern improvements attached.

The parlor, cottage and chamber furniture, bedsteads, &c., on show by S. D. Osborne, Keene, were all very fine, and were much admired.

Messrs. Warde & Walker, ironmongers, Concord, had on exhibition assorted varieties of Adams' patent World's Fair pattern axes, and Fisherville saws. One of these circular articles was five feet in diameter; and alongside it was a lilliputian of the same description of about an inch and a half in diameter. The workmanship of both kinds of implements was creditable to the manufacturers. Mr. Walker sold off all his axes on the ground, which is some proof that they were not of a middling quality.

Messrs. Jones, Carpenter & Wood presented some of their famed melodeons, of assorted sizes—all fine instruments. We did not see any of the Concord manufacture, nor were any of the famous pianos made in that city upon the ground. Messrs. Jones & Co.'s six octave portable melodeon was a general favorite, and was manipulated by several of the lady visitors, very much to their satisfaction, apparently, and very much to the gratification of their hearers.

Messrs. Foster & Felt had some of their celebrated Æolian Seraphines on the ground, the fine tones of which were highly relished by the visitors, who crowded around when they were dispensed (and well dispensed, too,) by the attendant.

Messrs. Smith & Chase, of North Weare, had on exhibition a novelty in the shape of a straw cutter. The peculiarity of the construction of this implement is the alteration of the direction of the obliquity which is generally given

to the knives. In the common machine the obliquity runs from end to end in the cylinder. The advantage of this disposition is that the straw will not choke the machine at the ends, as the knives work so as to make the horizontal pressure upon the body of straw fed to it pass from the sides to the centre of the machine.

Magoon & Prince's, (of St. Johnsbury, Vt.,) apparatus for heating feed water in the smoke pipe of locomotive engines was represented by a beautifully constructed model. The application of the principle of this invention, after a series of ten experiments, has proved it capable of saving 20 per cent. of fuel. It has many other properties, the description of which could only be understood by the scientific reader.

The school-room desks and seats, (a model of which was exhibited,) by Virgil Woodcock, of Swanzey, were very ingeniously arranged, so as to save 25 per cent. of space, besides the furnishing of superior accommodations for teacher and scholar. Some of our friends connected with educational affairs were well satisfied that the invention was a valuable one.

A beautifully constructed and finished two-horse sleigh, by Jason French, of Keene, was much admired by visitors; also the several contributions of harnesses, by various contributors. Some excellent saddlery work was also on exhibition, which showed substantiality and taste in superior styles.

The Cheshire County doeskins, by Milan Harris, of Harrisville, and Harris & Hutchinson, of Nelson, were splendid specimens of home manufacture. No good judge would say that better could be found any where, or finer, or better dressed, or colored. The fabrics showed by Milan Harris were especially beautiful. A lot of plain and printed flannels, from Josiah Colony & Sons, were very much admired.

The beautiful specimens of crayon and monochromatic

drawing, by Mrs. E. Clark, Mrs. G. G. Ingersoll, Mrs. D. N. Wright, Mrs. H. A. Bill, Mrs. G. W. Harris, Miss Irene A. Carpenter, Miss S. D. Leverett, Miss Cordelia Burnap, Miss Amelia N. Hale, of Stoddard, Miss S. E. Maynard, Marlboro, Miss Sarah A. Gleason, Westmoreland, exhibited a taste and talent which some professional artists might covet.

Some fine specimens of oil paintings were exhibited, one by O. G. Dort, of Keene, of Gen. Scott by the side of his noble charger. A portrait of a young lady, by Mr. Joseph Wheeler. It is represented with a veil thrown over her head. It is so perfect that we involuntarily raised our hand to remove the veil before we discovered our mistake.

There was a great variety of leather-work picture frames by Mrs. J. Bowker, Mrs. J. D. Colony, Mrs. G. W. Harris, Mrs. H. A. Bill, Miss E. A. Webb, Miss Irene A. Carpenter, Miss Hannah F. Colony, Miss S. A. Gleason, Westmoreland, Miss Mary J. Mowers, Troy, and one enclosing a large oval mirror by Mrs. S. D. Osborne, Keene, attracted much notice.

The shell work, by Mrs. H. A. Bill, Miss S. E. Maynard, Marlboro, Miss Olive F. Felch, Fitzwilliam, Miss M. Neil, Hillsboro, was very good. The center table under this head, wrought by Mrs. H. A. Bill, received many encomiums.

Worsted work presented by Mrs. B. M. Harris, and Miss Caroline B. Harris, of Harrisville, Miss S. A. Gleason, Westmoreland, Miss Jane Nourse, Troy, Mary D. Ryder, Dummerston, Vt., and Marcella Holmes of Keene, reflected high credit upon the taste and ingenuity of the contributors.

The ottomans labelled Miss P. M. Prentiss, Miss E. Tilden, Miss Maria A. Wilder, Miss Frances M. Colony, and Miss S. A. Gleason, of Westmoreland, were specimens of taste and industry which reflect credit upon the fair contributors.

A patch-work chair by Mrs. E. Clark, and two with

wrought back and seat, and others whose card we did not find; taking these for a sample, it proves the fact that ladies are possessed with unwearied patience as well as good taste.

The contributions in embroidery, by Mrs. J. D. Colony, Miss Mary H. Adams, Sarah F. Beal, Mrs. Laban Rice, Jaffrey, Harriet Paine, Westmoreland, showed much skill and taste. One piece by Mary Hagar, of Hinsdale, 12 years old, received much praise.

A bonnet and mat, by Mrs. H. W. Smith, wrought or knit from cotton thread, showed much taste and great ingenuity.

Two crochêt bonnets, by Sarah K. Colony. These were new to us, but we heard several ladies who were examining them, say that "they were very nice." Our own judgment was, if they were intended for bonnets, they would ornament the head of a lady to the best advantage in the shade, when the mercury stood about 90.

A quantity of saddler's and sewing silk, from Antrim. We could only see it through a glass, but its colors were brilliant. It was colored by Mr. Barrow, of the Keene Dye House.

Two vases of wax flowers, contributed by Miss E. A. Webb, were spoken of as competing with nature's own work. One vase by Mrs. H. A. Bill—admiration was loud in praise of her handiwork.

There were a great variety of bed spreads, one by J. E. Carter, Fitzwilliam, Mrs. E. White, Marlow, two by the Ladies' Sewing Circle, Winchester, Mrs. R. Elwell, Langdon, Mrs. H. D. Jewell, Munsonville, Mrs. Mary Stoddard, and Miss Lucinda Stoddard, of Nelson, Mrs. George Holmes, Keene—were highly creditable to the contributors, judging from the remarks made upon the articles.

Mrs. Paul Willard, of Winchester, aged 74 years, contributed a wrought bed spread. On examination of it one would be led to believe that by adding years to one's life, taste and industry was acquired in the same ratio.

Mrs. Bailey of Jaffrey, exhibited a bed quilt containing 6000 pieces, for its beauty it was universally admired. Mrs. B. furnished specimens of darning—one article was a pair of pants. They were darned till there didn't seem to be much else left; but it was so neatly done, no one who saw it could but admire the taste and skill of the contributor. The extra amount of darning seemed to explain itself in the following couplet, which we found attached to the pants:

> "For want of a piece to make a patch,
> I have to darn to make it match."

Holding conspicuous prominence among the articles of toilet use, was a case of ladies' bonnets, &c., from Clark's Bonnet Saloon, Keene. It was with great difficulty that we could find opportunity to inspect this contribution, on account of the number of the ladies who thronged around it. The millinery articles shown by E. R. Gilmore, of Keene, were very superior in all points of special requirement. The furs, by H. Pond & Co., were one of the most attractive portions of the exhibition—as were also the case of hats, caps, and military paraphernalia; and also the clothing and millinery by Buffum, Parker & Co., also of Keene.

Mrs. C. C. P. Harris of Harrisville, exhibited a rag carpet which was a very fine piece of work and deserves a premium.

There were a great variety of hearth rugs, floor mats, door mats, and articles of this kind, which adorned the tables and added interest to the Fair.

Mrs. N. D. Hale of Stoddard, presented some specimens of knit hose, worth looking at, and more to wear out.

Mr. B. Coolidge of Marlow, and Mrs. David Buss of Acworth, furnished some tufted woolen gloves and mittens, udon which there was very little room for improvement.

Mrs. E. M. Alexander, of Winchester, presented some fine specimens of sewing and embroidery, which were

greatly admired; also, a *Hortus Siccus*, of elaborate compilation, and fine arrangement and preservation. It was inspected by thousands, and highly appreciated by not a few who were competent to judge of its merits on the score of their utility.

One of the prettiest and most artistically managed of the fine art contributions was the Grecian painting of "Eliza Harris and her Child," by Miss Lizzie F. Balcom. In respect to drawing and coloring it had no match in the exhibition—although we would do great injustice to Miss Eliza Adams, of Keene, should we neglect the duty of complimenting her on the great skill displayed in her original landscape of "a pic-nic on the Ashuelot," and her copy of the "Muleteer and pack mule." The head of the lower animal of the two was painted in a style which would have done no discredit to any of the "great few" who have made their names famous in conjunction with painting.

As a whole, the Ladies' Department was marked by fewer features of mediocrity than any other of the exhibition. One omission, it struck us, might be rectified at future meetings: that was the absence of the ages of the young contributors from the tickets upon their specimens of crayon, oil, and other paintings, &c. We know the delicacy which interferes with this requirement in the case of *older* young ladies, and would respectfully suggest that the age should be specified in every case where the competitor has not exceeded fourteen years.

David W. Farrar, Esq., of Troy, and S. W. Buffum of Winchester, exhibited some palmleaf hats, which show great proficiency in this branch of industry within a few years past. Palmleaf hats can now be manufactured to vie with the Leghorn or Panama hats, except in durability.

Mr. Frank A. Brown of Manchester, exhibited a large number of cases of daguerreotypes, which had numerous admirers for their artistic beauty.

Mr. Ball of Walpole, had on exhibition specimens of

dentistry and a case of instruments. Mr. W. F. Chamberlain of Manchester, also had some fine specimens of the dental art, whose shining gums and grinning teeth looked as though they would need no cautionary placed near them, "hands off," but would bite the first finger that touched them.

Silver spoons of all sizes, manufactured by E. E. Bailey, of Claremont.

Socket chisels, manufactured by Pliny Merrill, of Hinsdale. They bore the evidence of passing through the hands of a "finished workman." Axes, by E. Adams of West Boscawen.

We would specially mention the contributions of the Claremont Cutlery Establishment, and those of the Robbins and Lawrence Company, Windsor, Vt. The committee on new inventions were much exercised in inspecting the fire arms furnished by them, especially the chairman, Gov. Baker.

The earthern ware of O. N. Russell, of Pottersville, was varied in description and of excellent quality.

There were many other articles of invention and manufacture which were equally deserving of notice, but the judges have mentioned most of them in connection with the awards, and to these we refer our readers.

Did space permit we should have pleasure in particularizing every article of merit on the ground—and these were numerous.

ANNUAL MEETING.

The Annual Meeting of the Corporation, for the choice of officers and the transaction of business, was held on Wednesday evening. The President, Dr. Woodbury, on taking the chair, addressed the members very briefly, referring to the continued success of the Society, its usefulness, its influence even on those who never attended its fairs or contributed to its support. Expressing the hope that it might increase in usefulness and be sustained through many years, the President announced that he should not be a candidate for re-election.

A committee consisting of two from each county was chosen to nominate officers for the government of the Society for ensuing year.

While the Committee were in consultation, an abstract of the following detailed report of the finances of the Society was read by Frederick Smyth, Treasurer, and accepted by the Society.

TREASURER'S

New Hampshire State Agricultural Society in account current, from Sept. 1, 1853, *to Sept.* 1, 1854, *with Frederick Smyth, Treasurer.*

		Cr.
By cash on hand Sept. 1, 1853,		$1.175 25
" "	received for badges of membership and tickets of admission to the Fair, October, 1853,	4.339 79
" "	received for entrance fee of carriages during Fair, 1853,	132 01
" "	received for rent of grounds for circus, tents, &c.,	262 25
" "	received of citizens of Manchester as donation to Society,	727 00
" "	received for sale of lumber, &c.,	$821 00
" "	received of David Gillis towards life membership,	10 00
" "	received for five copies Transactions sold,	5 00
" "	received for twenty-nine copies Transactions sold members,	21 75
" "	received of George Porter for articles sold belonging to forage department,	32 66
		$7.526 71

REPORT.

New Hampshire State Agricultural Society in account current, from Sept. 1. 1853, to Sept. 1, 1854, with Frederick Smyth, Treasurer.

DR.

To cash paid for Silver Ware Premiums and Badges.

To H. H. Ladd, as per voucher No.	1,	$65 00	
" " " " " "	2,	2 50	
" " " " " "	3,	2 50	
" B. F. Edmunds, " " "	4.	12 00	
" P. K. Chandler, " " "	5,	21 40	
" F. Smyth, " " "	6,	87 90	
" C. S. Baker, " " "	7,	9 00	
			$200 30

To cash paid for Lumber and Materials.

To Geo. F. Judkins, per voucher No.	8,	$115 00	
" Harry Leeds, " "	9,	990 76	
" R. M. Yale, " "	10,	15 00	
" Dennis & Varick, " "	11,	46 20	
" E. Ferren, " "	12,	3 72	
" Dix & Elliott, " "	13,	2 25	
" Wm. White, & Co., " "	14,	13 76	
" Berry & Co., " "	15,	2 67	
" J. N. Bruce, " "	16,	7 37	
			$1196 73

To cash paid for Postage and Express.

To Manchester P. O., per vouch. No.	17,	$7 01	
" " " " "	18,	5 71	
" Cheney, Hill & Co., " "	19,	1 00	
" " " " " "	20,	22 97	
" F. Smyth, " "	21,	10 00	
			$46 69
Amount carried forward,			$1443 72

Amount brought forward, $1443 72

To cash paid for Labor.

To Jacob P. Chase,	per voucher	No. 22,	$260 11	
" Asa S. Crosby,	"	" 23,	1 75	
" James O. Adams,	"	" 24,	20 00	
" H. G. Lowell,	"	" 25,	6 00	
" J. L. Kelly,	"	" 26,	8 00	
" N. B. Hall,	"	" 27,	5 00	
" Moses Brown,	"	" 28,	5 00	
" W. B. Webster,	"	" 29,	4 00	
" Geo. H. Gillis,	"	" 30,	6 00	
" Wm. Craig,	"	" 31,	5 12	
" J. S. York,	"	" 32,	23 49	
" F. B. Eaton,	"	" 33,	24 00	
" F. P. Smith,	"	" 34,	75	
" C. B. Gleason & Co.,	"	" 35,	5 00	
" E. Robinson,	"	" 36,	5 00	
" S. B. Page,	"	" 37,	2 50	
" Stillman Fellows,	"	" 38,	4 37	
" Stephen Smith,	"	" 39,	5 73	
" E. M. Topliff,	"	" 40,	5 00	
" Harry Leeds,	"	" 41,	12 00	
" Stephen Palmer,	"	" 42,	6 00	
" N. Jacobs,	"	" 43,	1 00	
" C. E. Rundlett,	"	" 44,	8 00	
" W. H. Hill,	"	" 45,	44 11	
" C. H. Brown,	"	" 46,	5 00	
" E. C. Stevens,	"	" 47,	3 00	
" C. B. Currier,	"	" 48,	6 00	
" A. Cressey,	"	" 49,	1 00	
" G. W. Adams,	"	" 50,	10 00	
" Robert Woodburn,	"	" 51,	5 00	
" Daniel Clark,	"	" 52,	2 00	
" N. Hall,	"	" 53,	3 00	
" A. E. Farley,	"	" 54,	40 00	
Amount carried forward,			$542 93	$1443 72

Amount brought forward,		$542 93	$1443 72
To C. E. Rundlett, per voucher No. 55,		4 00	
" James Walker,	" " 56,	2 00	
" J. H. Maynard,	" " 57,	4 37	
" Geo. A. French,	" " 58,	4 25	
" John Rowe,	" " 59,	5 00	
" C. W. Stanley,	" " 60,	2 50	
" John Cheney,	" " 61,	1 00	
" M. Ingham,	" " 62,	20 00	
" G. B. Fogg,	" " 63,	1 00	
" G. C. Smith,	" " 64,	3 75	
" Joseph Marshall,	" " 65,	1 50	
			$592 30

To cash paid for Teams and Teaming.

To Andrew McCrillis, per vouch. No. 66,		$36 00	
" Hill & Cheney,	" " 67,	1 25	
" " "	" " 68,	12 00	
" " "	" " 69,	2 25	
" J. N. Heath,	" " 70,	5 18	
" R. White & Co.,	" " 71,	8 75	
" " "	" " 72,	16 33	
" E. N. Fisk,	" " 73,	30 66	
" J. T. Neally,	" " 74,	5 00	
" S. Hodgman,	" " 75,	2 33	
" Geo. Hunt,	" " 76,	12 73	
" D. K. Prescott,	" " 77,	15 00	
" S. S. Coffin,	" " 78,	5 00	
" T. P. Pierce,	" " 79,	9 00	
" James Richards,	" " 80,	7 59	
" William Shepherd,	" " 81,	61 00	
" H. T. Mowatt,	" " 82,	12 00	
Amount carried forward,		$242 07	$2036 02

Amount brought forward,	$242 07	$2036 02	
To Fling & Haines, per voucher No. 83,	8 00		
" J. H. Willard, " " 84,	7 00		
" B. B. Bunker, " " 85,	8 00		
" Geo. W. Riddle, " " 86,	10 00		
" I. N. Haynes, " " 87,	10 00		
" Coffin & Sherburne, " " 88,	12 00		
		$297 07	

To cash paid for Forage, Water and Refreshments.

To George Porter, per voucher No. 89,	$43 08	
" Retyre Mitchell, " " 90,	23 20	
" C. H. Brown, " " 91,	18 55	
" Sewall Leavitt, " " 92,	44 37	
" C. A. Hall, " " 93,	135 32	
" J. Abbott & Co., " " 94,	94 85	
" A. E. Farley, " " 95,	90 00	
" H. H. Summers, " " 96,	70 00	
" Jeremiah Sanborn, " " 97,	1 25	
		$520 62

To cash paid for Music.

To Manchester Band, per voucher No. 98,	$150 00

To cash paid for Printing and Stationery.

To Morrill & Silsby, per vouch. No. 99,	$6 00		
" John B. Clarke, " " 100,	24 50		
" J. O. Adams, " " 101,	122 75		
Amount carried forward,	$153 25	$3003 71	

Amount brought forward,	$153 25	$3003 71
To Campbell & Gilmore, pr. vo. No. 102,	16 25	
" McColley & Hale, " " 103,	15 95	
" Joseph Marshall, " " 104,	3 00	
" J. O. Adams, " " 105,	16 00	
		$204 45

To cash paid for Expenses of Executive Committee.

To James O. Adams, per vouch. No. 106,	$44 30	
" T. H. Leverett, " " 107,	8 00	
" Henry F. French, " " 108,	20 50	
" William Tenney, " " 109,	16 10	
" " " " " 110,	6 34	
" E. J. Glidden, " " 111,	6 82	
" F. Smyth, " " 112,	37 19	
		$139 25

To cash paid for Miscellaneous Expenses.

To B. P. Johnson, per vouch. No. 113,	$30 00	
" G. B. Fogg, " " 114,	4 00	
" A. Robertson, " " 115,	10 00	
" N. Brown, " " 116,	8 00	
" J. B. Clarke, " " 117,	48 50	
" Manchester Band, Oct. 1851, as per voucher No. 9 of that year.	50 00	
		$150 50
Amount carried forward,		$3497 91

Amount brought forward,		$3497 91

To cash paid Premiums of 1852, *as per Receipt Book.*

To J. R. French, on apples,	$3 00	
" B. F. Cutter, on orchards,	7 00	
" Joseph Cilley, on bull,	10 00	
" John N. Miller, on calf,	3 00	
" Amoskeag Man. Co., on drilling,	5 00	
" Mrs. L. H. Morse, fancy straw,	3 00	
Rowell, Prescott & Co., on printing,	2 00	
J. M. Rowell, on Poland fowls,	3 00	
" " " " turkies,	3 00	
" Z. Eldridge, on potatoes,	5 00	
" Henry Shaw, " "	3 00	
" T. H. Leverett, on beets,	5 00	
" C. Quimby, on hops,	5 00	
" W. P. Riddle, "	3 00	
		$60 00
Amount carried forward,		$3557 91

Amount brought forward, $3557 91

To cash paid Premiums of 1853, *as per Receipt Book.*

To E. Eastman, on bull,	$8 00	
" J. B. Cilley, "	7 00	
" Nathaniel Sawyer, on bull,	4 00	
" James M. Whiton, on "	4 00	
" S. & A. Seward, on "	12 00	
" A. P. Balch, on "	8 00	
" Stephen Scammon, on "	12 00	
" John Preston, on "	8 00	
" Joseph Wright, on "	8 00	
" William Parker, on "	5 00	
" O. W. Bayley, on bull calves,	5 00	
" James M. Whiton, on cow,	10 00	
" E. Eastman, on heifer,	8 00	
" James M. Whiton, on heifer,	5 00	
" County of Cheshire, on oxen,	50 00	
" County of Merrimack, on oxen,	40 00	
" Town of Concord, "	20 00	
" Town of Roxbury, "	15 00	
" Joseph Wright, "	12 00	
" N. P. Fogg, "	8 00	
" D. W. Buckminster, "	8 00	
" R. J. Sanborn, on steers,	6 00	
" Daniel M. Shirley, on yearling,	4 00	
" M. Brown, on beef cattle,	5 00	
" Benjamin Hill, " "	8 00	
" Wm. Hayes & Son, on beef cattle,	6 00	
" S. C. Hall & Co., on stallion,	20 00	
" D. M. Taggart, "	15 00	
" D. K. Marvell, on stallion,	10 00	
" D. M. Taggart, on stallion colt,	15 00	
" Richard Welch, " "	10 00	
" John S. Carr, " "	10 00	
" Hill & Cheney, on matched horses,	10 00	
" Andrew Gale, " "	7 00	
" S. H. Edgerly, on brood mare,	10 00	
" Henry Tebbets, " "	7 00	
Amount carried forward,	$400 00	$3557 91

Amount brought forward,	$400 00	$3557 91
To Wm. Hayes & Son, on colt mare,	$8 00	
" Joseph M. Rowell, " "	5 00	
" John Roby, on colt gelding,	8 00	
" Geo. M. Stevens, " "	5 00	
" D. M. Taggart, on gelding and mare,	8 00	
" George Dewey, on bucks,	10 00	
" Geo. W. Cutting, "	8 00	
" W. Hayes & Son, "	5 00	
" George Dewey, on sheep and lambs,	10 00	
" William Parker, on swine,	6 00	
" James M. Whiton, "	4 00	
" James M. Whiton, on swine,	6 00	
" Wm. Parker, "	4 00	
" James M. Whiton, on pigs,	6 00	
" " " "	4 00	
" George Porter, on Dorkin fowls,	2 00	
" J. F. H. Sawyer, on Bolton greys,	2 00	
" Nahum Blanchard, on Bremen geese,	2 00	
" Charles Emerson, on Black Chinas,	2 00	
" " " " Poland,	2 00	
" Isaac Huse, on variety,	5 00	
" James Harvill, on Poland,	2 00	
" Mrs. Nancy L. Baker, on bread,	4 00	
" Benjamin Hutchinson, "	2 00	
" J. B. Quimby, "	2 00	
" Isaac Morse, "	4 00	
" E. Barr, "	2 00	
" Geo. W. Kenniston, on butter,	6 00	
" N. Hurlburt, on old cheese,	6 00	
" Asa Huntington, on old "	5 00	
" Benj. Walker, on new "	6 00	
" Asa Huntington, on new "	5 00	
" D. W. Bill, on maple sugar,	3 00	
" Joshua Burns, on honey,	3 00	
" George T. Sanborn, on blankets,	4 00	
" J. K. Kelsea, on wool cloth,	2 00	
" Miss L. Wilkinson, on wool yarn,	2 00	
" S. M. Fellows, " hose,	2 00	
Amount carried forward,	$572 00	$3557 91

Amount brought forward,	$572 00	$3557 91
To Mrs. Wm. Caldwell, on worsted hose,	$2 00	
" J. P. Kimball, on gloves and mittens,	2 00	
" Mrs. T. A. Harraden, on cotton hose,	2 00	
" Amoskeag New Mills, on drillings,	5 00	
" P. K. Chandler, on bonnets,	6 00	
" C. A. Putney, on "	3 00	
" Mrs. Abr. Robertson, "	3 00	
" Miss Julia A. Beard, on darning,	5 00	
" Mrs. B. Hutchinson, on "	3 00	
" Mrs. S. T. Chase, on patching,	5 00	
" Miss M. E. Chapman, on "	3 00	
" " Anna N. Clark, on darning,	2 00	
" " S. M. Fellows, on patching,	2 00	
" " Harriet D. Gay, on needle work,	5 00	
" Mrs. D. S. Burnham, on "	3 00	
" Ann March, on counterpane,	2 00	
" Miss E. J. Moulton, on wrought chair,	2 00	
" Abby C. Straw, on embroidery,	3 00	
" H. H. Ladd, on silver ware,	5 00	
" Claremont Cutlery Co., on cutlery,	10 00	
" S. Gerrish, on farm gate,	3 00	
" Orrin Head, on chaise,	7 00	
" " " on buggy,	7 00	
" George Kenney, "	8 00	
" C. B. Haynes, "	7 00	
" Hartshorn & Tuttle on stove,	5 00	
" Hartshorn, Darling & Co., on stove,	5 00	
" " " " copper ware,	5 00	
" Dudley & Parker, on tin ware,	3 00	
" S. P. Duntley, on iron work,	3 00	
" Gove & Harris, on boots,	3 00	
" Josiah Clark, "	3 00	
" Mills & Lewis, "	5 00	
" Orrin Head, on harness,	7 00	
" Oliver Greeley, on trunks,	3 00	
" " " on valises,	2 00	
" James Whicher, on pails,	2 00	
" " " on tubs,	2 00	
" Luke Baldwin, on barrels,	3 00	
Amount carried forward,	$728 00	$3557 91

Amount brought forward,	$728 00	$3557 91
To McFarland & Jenks, on printing,	$3 00	
" Abbott, Jenks & Co., "	3 00	
" Azel Wilder, on plowing,	10 00	
" Wm. P. Riddle, "	8 00	
" Abraham Burbank, on plowing,	5 00	
" D. S. Willard, "	10 00	
" Harvey Carter, "	8 00	
" C. M. Burbank, "	5 00	
" Solomon Toby, on carrots,	1 00	
" " " on cabbages,	1 00	
" Chas. A. Hall, on beets,	1 00	
" Cyrus T. Lane, on onions,	1 00	
" Peter Mitchell, on tomatoes,	1 00	
" " " on squashes,	1 00	
" John Pattee, on sweet potatoes,	1 00	
" James Nutt, on pumpkins,	1 00	
" Wm. P. Riddle, on corn,	1 00	
" Joseph Prescott, "	1 00	
" P. Mitchell, on cranberries,	3 00	
" G. T. Senter, on peaches,	3 00	
" D. Clement, on "	2 00	
" " on apples,	3 00	
" Andrew Wiggin, on pears,	4 00	
" H. Putnam, on quinces,	2 00	
" Robert Kennedy, on quinces,	1 00	
" Stillman Hutchinson, on melons,	1 00	
" A. & J. O. Wiggin, on fruit trees,	7 00	
" Edward A. Marsh, on oats,	6 00	
" Mark Morse, on winter wheat,	10 00	
" John S. Craig, on " "	7 00	
" Asahel Smith, on " "	5 00	
" E. J. Glidden, on spring wheat,	8 00	
" Joseph Winslow, on corn,	10 00	
" William P. Riddle, on barley,	5 00	
" R. W. Currier, "	3 00	
" Geo. Porter, on rye,	6 00	
" J. L. Fletcher, on buckwheat,	5 00	
" W. P. Riddle, on hops,	5 00	
Amount carried forward,	$886 00	$3557 91

Amount brought forward,	$886 00	$3557 91
To W. P. Riddle, on hops, 1851,	$5 00	
" F. B. Eaton, on essay,	10 00	
" " " "	10 00	
" William Grey, "	10 00	
		$921 00
		$4478 91
1854, Sept. 1, Cash on hand,		3047 80
		$7526 71

FREDERICK SMYTH, *Treasurer.*

September 1st, 1854.

I have examined the foregoing accounts of Frederick Smyth, Treasurer of the N. H. State Agricultural Society, for the year ending Sept. 1, 1854, and find the same correctly cast and properly vouched.

WM. C. CLARKE, *Auditor.*

Manchester, Oct. 2, 1854.

The committee on nominations reported the following list of officers for the year ensuing, who were unanimously elected:

President,

NATHANIEL B. BAKER, of Concord.

Vice Presidents,

J. C. EASTMAN, of Hampstead;
JEREMIAH ROBERTS, of Farmington;
RUFUS G. LEWIS, of New Hampton;
CYRUS K. DRAKE, of Effingham;
RICHARD BRADLEY, of Concord;
HIRAM A. DANIELS, of Milford;
MILAN HARRIS, of Nelson;
JOHN S. WALKER, of Claremont;
LEVI PARKER, of Lisbon;
JOHN H. WHITE, of Lancaster.

Executive Committee,

EZRA J. GLIDDEN, of Unity;
G. O. HILTON, of South Newmarket;
DAVID BUFFUM, of Walpole;
W. S. CURTICE, of Danbury;
BROOKS SHATTUCK, of Bedford.

Secretary,

JAMES O. ADAMS, of Manchester.

Treasurer,

FREDERICK SMYTH, of Manchester.

MR. BROWN'S ADDRESS.

On Thursday, the third day of the Fair, the morning having been occupied in the exercise of horses and working oxen, and in a continuation of the examination by the judges, a little after 2 o'clock, the address of the day was given upon the field by SIMON BROWN, Esq., of Concord, Mass., editor of the *New England Farmer*.

Having been introduced in a happy and appropriate speech by Dr. Woodbury, the President of the Society, he spoke as follows:

We come together, my friends, to-day, to aid each other in the calling in which we are engaged—to seek to promote the interests of the great art which underlies all others —which feeds and clothes, and shelters us. The occupation upon which all trades, commerce, manufactures and even the fine arts, must go back and lean upon as a support. Even learning, music and poetry, will take their tone in a great measure, from the success which attends this employment.

It would not be too much to say that the morals and religion of any community, are greatly affected by the estimation in which agricultural employment is held. It is its nature to lead the mind to social and amiable habits, and high and holy purposes. Surrounded as the farmer is, by the glowing manifestations of Deity, *his* calling has an elevating influence scarcely to be expected in the marts of commerce, or in the harrassing pursuits of mercantile life.

These, and all in-door employments are indispensable as parts of the whole. The carpenter, the cabinet-maker, the saddler, the shoe-maker, the miner, the cooper, and ship-builder, each forms an important part in the web of

life—a connecting link in the great chain of human pursuits. Drop out one of them, and the woof of society is broken; the chain is dismembered, and like a hive of queenless bees, we must pause and repair the loss before the work of the world can go on.

A high degree of civilization requires a great diversity in the trades and arts to meet its demands. The bow, the spear, and the fishing hook, with a few simple utensils hollowed from the rock, or formed from the bark of a tree, answered all the wants of generations who occupied these beautiful lands before us. They lighted their forest-fires, and woke the solemn aisles with human tones. They lived their day, fulfilled their mission, and passed on. Other generations followed, and still further prepared the way for us.

But still the finger of God points onward. No degree of perfection attained should prompt us to pause. The Old World is plethoric with human population—with men and women whose hearts beat with emotions as lively as our own, and to whom comes the momentous question of *subsistence*, with a power which we cannot feel, because they have stood face to face with starvation and death.

Other generations have subdued savage men and beasts, and the boundless forests; they were the pioneers to your fair fields, your teeming hills and vales; your spires pointing to heaven, your beautiful and peaceful homes, where domestic love ripens into bliss.

Our hands are not necessarily filled with the means of self-defence, nor our hearts with anxious care lest a lurking foe shall surprise us, or the rigors of winter find us without the means of comfortable support. The dangers and hardships incident to early settlement have been endured by others, and we have entered upon the possession of a fair and prolific land. It is in us, then, a high duty *to progress*, and make such use of it as shall meet the approbation of our own sense of right, and of those who are to succeed us.

It may be profitable to inquire whether we are faithfully discharging our duty.

Does the soil which we first broke, and which then poured forth its fruitful stores, *continue* to yield an equal amount? And if not, what must be the result of such practice if continued through a few more successive generations? The reply is plain. In the distance will be seen neglected and forsaken fields, dilapidated homes, wandering families, decaying commerce, prostrated manufactures, and a wretched population; literature, the sciences and arts, music, painting and poetry, and all that goes to ennoble a nation, together with the kind amenities of life, would follow in the dismal train. Patriotism and love of country would soon die out from the hearts of the people, and this fair fabric become a prey to the rapacity of other nations.

But such shall not be the fact with you—your presence here to-day declares that *the art of dressing and keeping the land*, and the increase of her products shall progress among you.

The agriculture of no people or country is complete in itself. Every thing in our gardens and fields is the result of improvement. We have hardly a plant or fruit in its original state. Our potatoes, cabbages, apples, plums, corn, are improvements by change of climate and culture, on inferior or worthless stock. Fruits as delicious as the peach, and vegetables as delicate as celery, have been derived from the most acrid and poisonous originals. A French agriculturalist has tamed every individual member of the family of thistles, exposing to the sun those that grow in the shade, and burying in the dark those that derive acridity from the solar rays, and has rendered them savory and fit for human food. So some of the effects produced on animals by better care and change of climate, are almost beyond belief. An European sheep at the Cape of Good Hope has a tail of nineteen pounds weight; in Iceland has five horns; in Oxford County, England, grows to

an enormous size; in Turkey has a variegated skin like a tiger.

The average yield of wheat in Michigan is fifteen bushels; in England it is thirty-two. The difference is not in the climate—ours is the better adapted to that plant; nor in the soil—ours is new, and that of England has been worked for six hundred years. It lies chiefly in improved culture. Oxen were once considered large among us that would girt six and seven feet, and weigh 3000 and 3500 lbs. per pair. Now we sometimes see them measuring nine feet and upward, and weighing 3000 lbs. *each*. One hundred dollars was then considered a high price for a pair of fat oxen; now they frequently sell quick for double that sum; and during the past year in an adjoining State, a pair was sold for $500—not as fancy stock, but for beef! Similar improvement has been made in swine and horses; the flesh of the former being better, and the speed and power of endurance in the latter enlarged.

At the period to which I advert, it was the practice to keep *store swine* through the winter for the next year's supply of pork. The expense attending this course *now*, would be as much as the whole value of the animal when slaughtered, and no *profit* would be left. It was urged, or such must be the inference, that the animals would grow well through the winter *without much* to eat. Under this practice they were kept eighteen months, that being the length of time which was supposed the most profitable to keep them. But under more recent experiments, and a more careful investigation of the matter, one-half that time is ascertained to be the age to which they may be kept and yield the largest profit. Here, then, in the management of this animal, one indispensable to the farm, and which enters so largely into the articles of family support, we cut off nine months keeping, and the cost of attendance through a winter, and still find a profit greater than under the old practice.

So with cattle. The opinion prevailed that oxen must be kept till seven or eight years old, and then a summer of pasturage and two or three months of stall feeding be given them before they were fitted for the shambles. The fact was overlooked, that in the course of the third, fourth and fifth years, there were unquestionably periods when these cattle were fat upon the common products of the farm, and might then have been sold at a remunerating profit; but nobody thought of the matter, or investigated the physiology of the animal sufficiently to learn how impracticable it would be to fatten him quickly after the natural period of growth and vigor had passed. The erroneous idea was, in supposing that oxen were not fit for labor until they had passed the period in which they grow and fatten rapidly.

Now, however, much of the best beef produced, is from oxen four, five and six years old, which have been under the yoke through the winter and spring, turned to good summer pasture and fall feed, and indulged with roots, hay and grain for a few weeks in the months of October and November. In this way the labor of the animals will nearly equal in value the cost of keeping during the last half of their lives, and they are prepared for market during that period when they naturally grow and take on fat the fastest. The difference, then, between fatting oxen at this favorable moment, or postponing it until the natural tendency to take on fat and flesh has passed, and when it can only be obtained by extraordinary care and expense, will be so great as to rob the farmer of all profit in this branch of his husbandry.

At the period, too, of which I speak, a fleece of six pounds of wool was considered a remarkable product, and so it was, for it was rarely obtained; and a three or four months lamb sold heavily at a dollar, or a dollar and a half. But knowledge, reduced to systematic efforts, now produces fleeces of the finest wool of ten, fifteen, twenty,

and twenty-five pounds weight, and lambs that sell readily at two, three, and four dollars. I speak of those sold for the shambles; scores sell annually for breeding at prices ranging from $20 to $500 each, and are well worth the money they command.

Science has taught us, in sheep, how to breed for the largest product of wool, or for muscle or fat; and we have accordingly, races distinguished for one or the other of these qualities. About the commencement of this century, the average weight of good, fair sheep would not exceed twenty pounds per quarter, in England; now, it is by no means rare to find mutton weighing forty, fifty, and sixty pounds per quarter. There has also been a corresponding increase in the quantity and fineness of the wool. For this valuable improvement we are mainly indebted to the profound physiological knowledge and patient exertions of ROBERT BAKEWELL, of England.

Spanish and French merinos are now acclimated and prolific here, and a single animal often produces as much wool as three of the sheep common with us fifty years ago, and of a much better quality. In oxen, the same knowledge has taught us where to place the sinews of strength and lines of beauty, or to lay on the best steaks or stores of tallow; in swine, how to reduce the long snout, the flapping ears and coarse limbs, and carry the amount to juicy tender-loins and snowy lard. And, what is almost paradoxical, these advantages are realized at a less cost than that at which we used to obtain an inferior product under the old system.

Careful and long tried experiments have shown that almost any desirable points and qualities may be gained in the size, shape and productive powers of our animals, by patient and systematic attention.

For instance: to an hundred cows whose average product of milk is three quarts a day, you may apply the aids which science presents, and increase that average one

quart, without any increase in the cost of keeping; then, if you have 150,000 cows in the State, which you ought to have in a country affording such pasturage as this, it will give at four cents per quart, $6000 per day, $2,190,000 a year, in one common agricultural item in a single State! A sum sufficient in a few years, added to the other industry of the people, to reclaim all the waste places of your farms, to erect new and substantial dwellings with all modern improvements, to those who need them, to supply churches, school-houses, and halls for the transaction of public business, and the convenience of your lyceums and agricultural gatherings, and give to your hills and valleys the aspect of teeming fertility.

A similar result may also be obtained in horses; their value for the market, for docility, for speed and draft, may be materially enhanced by a judicious course of breeding and training; and while their productive value would be essentially greater, the cost of keeping them, it is believed, would not be so much as that of inferior animals.

These principles, which I have briefly illustrated, apply with peculiar force to every branch of farming.

Low lands, producing natural grasses and coarse herbage to the amount of a ton to the acre, and at an average value of $6 or $8 per ton, by proper draining and reclaiming, may be made to yield an average of a ton and a half or two tons of the most nutritious grasses. This fact is established by numerous cases open to the observation of all; and the principles upon which reclamation is made, are so plain that all ought to be familiar with them. These principles equally apply to plowing, to the use and application of manures, to the mechanical changes often necessary to be effected in soils, and to seeding and harvesting.

The subject of *capital*, also, in agricultural industry, may properly be considered in this connection. Errors prevail among farmers, and are constantly indulged, in this *sinew of agriculture*, as well as of war. The shrewd and suc-

cessful merchant rarely diverts his capital from his legitimate pursuits. If his transactions leave a surplus of profit, that profit is usually added to the original investment. He thus enlarges and strengthens his business, and creates a new power to control the markets and circumstances about him. Year by year his profits swell, because his operations are governed, not only by vigilance and economy, but in accordance with the true and unerring laws of trade.

Such should be the policy and practice of the farmer. The profits realized by the crops of this year, should be invested in permanent improvements in the soil he cultivates, or in the erection of such buildings or changes as will facilitate his efforts.

One hundred dollars expended in labor and manures upon five acres of land, will often increase the product, per acre, from one ton of hay worth $6, to two tons, each worth $12. Here, then, for the use of the $20 expended, would be a gain of $18 per acre, and for the use of the $100 on the five acres, a profit of $90! This result might not always be obtained the first year, though it often is, but the interest on the sum invested, after all allowances, would not fall short of 15 or 20 per cent. per annum, with the satisfaction that the principal is invested in a bank which will never refuse a discount, is not subject to revulsion or to stop payment. These facts are amply demonstrated every year in many parts of your State. Plain and obvious as they are, however, they have not yet induced hundreds to invest their capital on their homesteads, and unembarrassed by rents, clerkships and bonuses to the State.

A desire exists among farmers to become owners of stocks in banking or manufacturing companies, in railroads or steamships, or mining, lumbering, or perhaps some fancy scheme which promises large dividends with but little labor. Every where, they have diverted their capital from its true purposes, to invest it in one or all of these pur-

suits, and thus vast sums, the earnings of their patient and honest toil, have passed into the hands of speculators and drones,and are lost to them forever, or become so entangled in the intricacies of a business they do not understand, as to be a perpetual source of vexation and loss. This is an evil of such magnitude, that, until it is in a great measure corrected, I cannot hope for that enlightened progress which ought to distinguish us an agricultural people. The average interest of stocks in New England probably does not exceed six per cent., and many of them are so fluctuating and unsafe, as to justify anxious apprehensions in the minds of those who hold them, and are not intimately acquainted with the stock market.

Thousands of fields remain unimproved, and yield no more profit than they did under the dimmer light of a former age; generation after generation plow and mow around the same rocks; sour grasses readily usurp the places of those more valuable, for the want of proper drainage; old buildings, inconvenient and unsafe, and farm implements, awkward and unprofitable, are kept in use because *capital* is forced from it natural channel. So, large tracts of the best lands are abandoned to a luxuriant growth of water brush, reptiles, and the generation of poisonous exhalations.

A portion of this capital, rightly directed, would increase the productive power of impoverished pasture lands to many times their present fertility. Capital is power as well as knowledge, and the fact must be enforced upon the mind of the farmer, that its employment is as proper and necessary in agricultural pursuits, as in mercantile or mechanical, and that its use will prove as lucrative in farming, as in any other business.

In England, great attention has been given to the cultivation of root crops, and they are enabled to double the amount of stock heretofore kept on the same acres, because so much more nutriment can be raised from the same land than when appropriated to grass alone. The cultiva-

tion of the turnip, of the beet, the parsnip and carrot, as winter food for stock, will eventually work important changes in the economy of the farm.

In the agricultural improvements, which have been effected, the mechanic has done more than his full share. His activity of mind has wrought greater changes in the improvement of farm implements, than the skill of the farmer has in the management of soils and crops.

The introduction of a simple and cheap implement—the wheel-hoe, enables us to raise carrots at half the cost it requires without it. The use of the double plow, by separating and turning the sward into the bottom of the furrow so that the harrow and cultivator will not bring it up, saves considerable expense in the cultivation of the crop. The reapers are inventions which only would have been made where labor is too scarce and dear for the harvesting of vast tracts of cheap land. We are far behind England in production; we have surpassed her in enabling a boy to do in the field the work of ten men.

Jethro Tull's theory, more than a hundred years ago, (1731) was, that the secret of producing large crops lay in the frequent stirring and minute pulverization of the soil. His practice and teachings then fell upon cold hearts and deaf ears. But the light which Science has since shed upon the subject has convinced us that his theory, in some important particulars, was correct; and implements for this purpose have been devised far beyond any thing he ever conceived in effective power. The horse-hoe of to-day, and that of his invention, have scarcely a point of resemblance.

I have thus imperfectly shown that the farmers of the present day live under the most favorable circumstances for making great advances in the art of cultivating the earth. Peace pervades the land, leaving commerce free to seek new sources of demand for agricultural products, while the increased attention to manufacturing pursuits

creates new markets at our doors. Facilities for transportation have also given agricultural productions a remunerating value. "A ton of corn is estimated not to be worth hauling by wagon, when 170 miles from the market; while at the same distance upon a railroad it would be worth $22,00. A ton of wheat 230 miles from market is not worth the hauling by wagon, but by railroad it would be worth $44,35. We have more and better markets than our predecessors; better implements and machines to work with, and more valuable fertilizing agents.

What more then, it may be asked, is wanted of the farmer? Why is he not now discharging his full duty to the soil, and to those who are to succeed him?

I answer—He does not do justly by the soil, because, as a general practice, he annually takes away from it more than he returns, and this principle carried out, would result in the starvation and extinction of the race. The census tables show that the wheat crop of New York, in some counties, has fallen as low as eight bushels to the acre, where formerly from thirty to forty were produced. Lands deemed inexhaustible, have been cropt almost to barrenness. Large sections of territory in Virginia, formerly very productive, have become utterly sterile, and been abandoned by the original cultivators. An average crop of corn in that state is now only 15 bushels per acre, and of wheat only five! Our own forests have not only been stript of their noble trees, but robbed of their original richness, until nearly all the elements of fertility are exhausted. Five to ten acres of pasture lands are now required to feed a cow, where one acre once did it.

Again—No well devised system for the preservation of manurial agents, exists even on our farms; and in the cities, the products of our fields flow down the gutters and sewers into the remorseless maw of the sea, and are lost. Our pastures are barren mostly from the exhaustion of their phosphates, fed off by herds of cows, and carried

away in milk, butter and cheese. Nor is the value and importance of manures well understood, nor the benefits of the application of chemistry to our fields. "For fifty years it has been known in England, that bone-dust was a fertilizer for grain, fourteen times as effective as barn-yard manure. The practice was to break and crush animal bones by hand, or by rude machinery, till chemistry taught that certain acids would reduce them better." And it was probably in reference to the use of bones, that Liebig thought he could judge of the commercial prosperity of a nation, by the quantity of *sulphuric acid* it used, and Mr. Pusey said it was a good index of the degree of civilization of a people. A few years since, says a recent writer, in the little town of Spaulding, in England, 27000 pounds of sulphuric acid were used in a season in dissolving bones. The bones were purchased even in foreign lands; our own country was scoured for them; the imports into England amounted to nearly $1,000,000 a year. Now, however, chemistry has established another fact, viz: "that certain stones and masses of rock contain the same fertilizing substances as bones—phosphate of lime—and by a simple chemical process, these before useless rocks, are converted into the condition of bone-manure and given as food to crops."

Mistakes occur in every day practice which dishearten the farmer, and keep his profits low. He applies crops to lands naturally unsuited to them, or after they have been exhausted of the elements which the crop he applies, requires; grasses and grains are harvested at periods when great loss is sustained; valuable woods for timber and fuel are cut at a time when they are most liable to perish readily, and in most cases lands are overseeded by sowing grains broadcast instead of in drills. On this point I will cite a single instance. An extensive and practical cultivator in England states that upwards of 17,000,000 bushels of grain and peas and beans are yearly thrown away in that coun-

try in superfluous seed, independently of the additional produce which might be obtained by the use of the drill.

Actual experiments have proved that a bushel of wheat sown in drills will produce an average of three bushels more than when sown broadcast. This will allow us to multiply the 17,000,000 by 3 and to find an aggregate of 51,000,000 of bushels; thus confirming the statement of the writer, that "a clear saving of $25,000,000 might be made in the article of seeding in a single year.

What, then, must be the annual loss in our extended country? From an estimate I have made, which is undoubtedly an approximation to the truth, I have no doubt the loss in this state, in overseeding, is half a million of dollars annually!

But I will not longer indulge in this view of the subject. Plenty of noble examples have made it sufficiently clear that the soil is *capable of being made to produce treble of what it now reluctantly yields.* The lion in the way is *the want of knowledge—we know not how to treat it.* To gain this knowledge, and enable the farmer to avail himself of all the helps which beneficent nature has placed within his reach, is now clearly his duty, and ought to be his pleasure. How he shall do this, and through what agencies and influences, is a question more difficult to settle.

In the first place, *individual* effort must lead the way. In imitation of mechanics and manufacturers, the farmer must exercise close and constant *observation*, and bring to his own operations the advantages to be derived from the study and experiments of others. The cotton or woolen manufacturer acts upon a suggestion of the slightest improvement, and varies a color of his fabric to suit the public taste, or alters its shape to adapt it to the machinery he drives. The architect studies every form in nature to enable him to present an elegant or imposing facade, or to span rivers with bridges of gossamer work, yet of surpassing strength, and so does the sculptor to give life and

beauty to the marble under his hands. The mechanic eagerly seizes every suggestion of genius, and transfers his thought to our machines, and supplies us with reapers, thrashers, mowers, and seed-gatherers, and thus averts a vast amount of human toil. The machinist catches the results of other reasoning minds, adds them to his own, and perfects his work so that we are rapidly carried on our way, at forty miles an hour, or produce cotton cloth for the world, at the rate of thousands of yards in a day from a single mill. These are examples for the farmer; he must be a *thinker*, as well as a worker. He must transfer to his own fields the experiences of others—make their results his starting points—then, adding his own careful investigations, advance to higher modes of culture.

But the farmer must not be content with the aid derived from an appropriation of the ideas of active and ingenious minds about him. He may avail himself of these, but a most intimate knowledge of the mechanical powers alone will only partially qualify him for his profession. It was Burke, I think, who said the lawyer must not only possess a good education, and be familiar with the laws which he is to apply and explain, but he must have a general knowledge of the whole range of the Sciences. If this be requisite for the lawyer, how much more so for the practical farmer. The lawyer may argue a case of "flowage," or "trespass," and scarcely need a term of chemistry or physiology, or an hundred other cases where hydraulics or geology could shed no light on legal lore. But the farmer has no such case. He cannot build, or stir the soil, or plant, or harvest his crops with enlightened wisdom, without the immediate application of some one of the sciences. There is *no* profession demanding so wide a range of scientific knowledge, as that of the farmer. It were as wise to enter upon the cultivation of his soil without some chemical knowledge of its constituent parts, as for the manufacturer to set his

wheel in motion, not knowing whether his looms were to be impelled backward or forward!

The artist watches with eagle eye the blending of colors on his pallet, and reasons and reflects upon their effects on the canvass. So should the farmer on the lock of hay he feeds to his cow. If in his investigations he has studied the structure and functions of his animals, and the offices their organs perform, he will be better able to estimate what a given amount of food will produce in flesh or milk. A knowledge of their structure will also enable him to prevent or control the diseases to which they are liable. And this acquaintance with some of the principles of physiology is as essential to the farmer, as a rotary motion to the mechanic, or Blackstone, or Coke upon Littleton to the lawyer.

Without some acquaintance with botany, the farmer gropes as in a labyrinth among his plants. The names of a few are familiar, but their derivation is hidden in deep mystery, and thus a pleasing feature of his occupation is lost. He does not reflect that language gives expression to *things*. For instance, that the stem and kernel of the wheat he cultivates, mean "hope," and "bearing," and that to a hungry world, this meaning is full of encouragement as well as beauty! This science will enable him to learn the names, and to select the grasses on his farm, some of which will be nutritious and worthy of cultivation, while others are worthless. He will also learn the habits and wants of trees, the circulation of the sap, and the art of managing them so as to surround himself with fruits more delicious and profitable than sunnier climes ever yield. The flowers —now sealed books—will show their distinctive characters, and unfold new volumes of wisdom to his mind.

But the great essential is chemistry—to a course of high, enlightened, and successful farming, some acquaintance with this science is indispensable. As well may the clergyman succeed, deprived of the volume of inspiration, the physician of his pharmacopœia, or the lawyer his brief. Chemi-

cal influences and effects enter into every department of his operations, and without some accurate knowledge of the substances he employs as fertilizers, he is constantly liable to imposition, vexation and loss. His ashes and lime may be applied where alkalies already abound; his plaster where clover grows in rank profusion, and fresh muck where his fields are covered with "nature's grave-clothes"—the incorrigible sorrel. There is chemical action every where about him; in his mows of hay, his chests of grain, his compost heaps, his ripening crops. The importance of this science to the farmer has rarely been overstated by theorists or by the books; its relations are so intimate with all he he does, that its employment cannot be dispensed with.

These are some of the laws of Nature which he must understand, and there are others after which he must seek with diligent curiosity. Some knowledge of meteorology would often enable him to secure his crops when the indifferent would see theirs wasting by storms. He would so skilfully prepare his soils as to draw stores of fertilizers from the atmosphere, and thus feed his crops from that great reservoir of wealth through the action of natural laws. He ought to acquaint himself with the principles of draining, of irrigation, sub-soiling and entomology.

Such are some of the acquisitions he should strive to make. The gates of knowledge stand open, inviting him to enter and supply them. The earth lifts up her hands and cries for better treatment. It expands with generous benevolence to all who work it with an enlightened wisdom. It will not forever yield, and receive nothing in return. It has not been so constituted by Him from whose plastic hands it came. *Like the laws of trade, it must be compensated for its bounties.* To ignorance and indifference, it will refuse a reward. But to systematic application, to those who act in unison with natural laws, to the *observer* and *inquirer*, it will yield its richest fruits.

Individual effort, then, is the first step in agricultural pro-

gress. The next must be *associated* effort, beginning with Town Clubs and Exhibitions, then the County and State. These are in progress among you, and should be cherished as the moving cause of a degree of prosperity greatly desired, and which may be attained through their influence.

No other means of spreading improvements among the people, are so direct and applicable, as those flowing from club discussions and public exhibitions. They bring men, women and children, to feel an immediate and home-interest in the matter; their pride and their skill are alike interested by the general competition, and an ambition is awakened, rarely felt by those outside of these associations. This ambition prompts to new excellencies in every thing relating to the farm;—its buildings, fields, crops, fruit, stock, fences, drainage;—to dairy products, implements, and vehicles;—to neat and tasteful cultivation, and promotes a desire for something of the ornamental and picturesque.

Encouragement to this science cannot be a mistaken idea, when a whole nation, as it were with a common impulse, has raised its voice in its favor. But, as in political affairs, the people are in advance of their rulers. They know that aggregated wealth, with the protection afforded by government, has brought our manufacturing interests to great prosperity, and in point of excellence to compete with the world. But the farmer cannot pursue his business in this way. His occupation is peculiarly a solitary one. He is more alone in his pursuits than the mechanic, the merchant, or the professional man. His work *must* be done in the country, where opportunity to compare opinions, practices and results, must be few. He cannot afford to raise funds to establish schools or colleges to teach his children the science of agriculture, while at the same time he bears his full proportion to support those founded for other purposes. In a spirit of enlightened liberality, this should be done by the fostering care of the state. A wise investment of the public funds—either state or national—in rendering facilities to

the people for agricultural improvements, would be returned in a four-fold degree to the public treasury. So sensible have most of the states become of this fact, that they no longer hesitate to make special appropriations for this purpose. Iowa, young as she is, saw this, and last year appropriated $200 to each county exhibition. The legislature of Michigan gave, in 1846, $400 a year for five years; Indiana $1000 for two years, Maryland and Virginia have appropriated liberally, and Massachusetts has paid out about $10,000 annually, for several years.

Each state should establish a legislative agricultural society, where, during the sessions of the legislature, the general interests of the profession, may be freely discussed by practical and scientific men, and especially by the legislators themselves. The old Massachusetts society has been instrumental of immense good, and still continues in active usefulness. It was followed by a legislative society which has been well sustained and has sent out numerous fertilizing streams. More recently, with that wise forecast which has ever distinguished the old Bay State, she has established a *Board of Agriculture*, composed of gentleman active in the county societies, and prominent for their interest and ability in agricultural affairs. She has not, however, established the Board, leaving it powerless and inert, but with her accustomed liberality, has placed a farm of three hundred acres under its control for five years, with an appropriation of $6000 for the purpose of experiments and improvements.

The agricultural education of our youth, should no longer be made a secondary matter. Establish such schools, colleges, or model farms, as will enable them to penetrate and unfold the mysteries which surround us—to break down the walls of ignorance, and light up the hidden secrets of the earth and air! These things may be done, men of New Hampshire, by you—they lie in your power. If you *will* it, the work will go on—if you are indifferent, the earth

will refuse her increase, and your children will be scattered abroad.

But a true patriotism—love of country and home, the memory of those who have fought your battles and achieved your victories—of Lovewell, of Stark, of Sullivan, of those who have trodden the halls of national legislation or graced the courts of kings—of Webster, of Woodbury, of Cass—all forbid this desecration of your soil, and of the human mind. You will not abandon your grand scenery, your noble rivers and sweeping vales, your limpid lakes and skipping mountain-streams, for the turbid waters and miasma of western lands. Like the Swiss for his early songs, and rocks, and glens, you would languish for your native hills, and return to them with the ardor of a first love. The position you occupy, your soil and climate, all urge you to speed the plow. Nature has done all that you can ask. She has given you a fertile soil, swiftly running waters, bright suns and an invigorating atmosphere. Your hills are crowned with noble forests, your plains swell with corn in its season, and your valleys are covered with the other great New England staple—grass.

No other climate produces so large a variety of wholesome and delicious vegetables, or a finer display of beautiful and fragrant flowers. Fruits, denied the masses in most lands, are here upon every table. Apples in great variety, peaches, pears, plums, apricots, melons, currents, strawberries, are accessible to all. To these may be added the richest vegetables — the squash, potatoe, cabbage, cauliflower, tomato and egg plant, beet, carrot, turnip, &c.

Reared among your majestic hills, and drinking the celestial dews they distil, your frames are firm as the granite on their sides, and yet as elastic as the breeze which sweeps their brows. Fitted, then, to the work before you, make it yield not only the necessaries of life, but the medium through which the highest moral and intellectual culture may be obtained; as these are secured, so will be the money

profits of your calling! He who knows most, in any pursuit, will generally succeed the best, and agriculture will not prove an exception. Men are selected for places of responsibility and trust, because qualified by study and observation.

The farmer's occupation has been looked on as one of unmitigated drudgery. Let it be so no longer. No profession has so much of the true poetry of life as his. He labors amid the purity and the freshness of nature herself, and good thoughts are ever suggested by the beautiful things around him. He who gives voice to poetic inspiration, comes to your forests and fields, or on your mountains and along your fertile vales, for the materials of his portraitures and imagery. Rural life is full of beauty; it charms the imagination and cherishes the virtues.

Agriculture has now, also, an elegant literature. Some of the best minds have been occupied by it. Numerous persons at home and abroad, might be cited, who have given their chief thoughts to it, and whose names will ever be uttered as benefactors. The *poetry* of the Sciences, too, is so intimately connected with it as to become the handmaid of our great art.

To these, add but a single *other* feature, and the profession of agriculture becomes pre-eminently attractive, and promises all that man may expect in this condition of his being—that feature is *agriculture in its social relations.*

In most of the other pursuits, the family is excluded from a participation. It is not so in this—every member may not only *feel* an interest, but may take part in its active employments, either in-doors or out, and thus the social feelings are enlisted in the general welfare. But where woman is cut off from a proper share in the common interests of all, and made to perform a subservient part, neither a high degree of refinement, nor a full and complete mingling of the affections can exist.

I have said that the occupation of the farmer is peculiarly

a solitary one; so, in the common sense, are his enjoyments, —they are domestic; he will realize them in the bosom of his family; not in gay saloons, or theatres, or the unsatisfying exactments of artificial life. In the intelligence of his wife and children must he find mental as well as physical help in his profession. Polite learning should find a congenial home around his winter evening fires, and the scholar, the artist, and the statesman, find kindred spirits there too.

Woman, free and unconstrained by unequal laws and harsh restrictions, would move in her charmed circle, softening and modifying our rougher natures, and like the gentle south wind on icy rocks, imperceptibly influence all within her reach, and mould them to her own perfections. Use well, then, farmers of New Hampshire, the means so munificently placed in your hands. Then shall the time come when you may beat your swords into plough-shares and your spears into pruning hooks. Then

> "The stormy clangor
> Of wild war music o'er the earth shall cease;
> Love shall tread out the baleful fire of anger,
> And in its ashes plant the tree of peace."

Mr. Brown's address was received with distinguished marks of approbation, and was followed by vocal music by the Hutchinsons, who gave the *Song of Labor*.

The Secretary, Mr. Adams, addressing the President, remarked that he saw upon the platform a gentleman in whom all had an interest—who, though he possessed the *Veto Power*, would not exercise it, when a demand was made on him by the farmers of New Hampshire.

A call was made for Gov. Baker, who came forward amid repeated cheers, and spoke in substance as follows:

Fellow citizens:—I think I am placed in rather a bad position; I have to follow the best of speakers who could be

presented to you—men who will catch the popular breeze long before I can. But still I am glad that their music has drawn out such an audience.

Gentlemen and ladies, I am glad to see you here, upon what has really become the great holiday of New Hampshire. We used to have our great militia musters, and other holidays, but the farmers are establishing County and State Fairs, which are becoming our great holidays, and I rejoice at it. Not that I rejoice that the old military spirit has gone down, for I do not believe the time has yet come when the lion and the lamb can lie down together.—But upon you, gentlemen, upon the yeomanry of New Hampshire, depends the question whether you will have hereafter to resort to the sword and musket to defend your own firesides. God grant the time may never come. I do not intend to detain you but a few minutes, but I wish to suggest that one remark of the orator of the day in relation to the observations of farmers is well worthy of consideration.

Gentlemen, you never see a mechanic who learns about a new improvement in a branch of machinery with which his own business is connected, who does not try to purchase or make one like it. Why do not farmers act with the same spirit? As a class, I believe the farmers of New Hampshire are more prejudiced against improvements than any other class. They look back with too much reverence upon the acts of their forefathers, and therefore they will not try to adopt improvements which are shown to be successful.

I see among you many ladies, and I rejoice that they have come here to cheer us. Gentlemen, you can do nothing without them. And, ladies, I trust you will all come to the next Annual Fair, and bring your fathers, husbands and sweethearts with you.

If there is any prosperity or glory attending the people of New Hampshire, it is owing, under God, to the mothers

of the State. Whilst hostile navies are floating over the seas of Europe, whilst armed hosts are trampling down their plains, peace, prosperity and plenty attend us, and we should return sincere thanks to God for the blessings He has vouchsafed to us.

His Excellency took his seat amid repeated expressions of approbation.

After brief remarks by Gen. E. A. Phelps, of Connecticut, and several other gentlemen, the intellectual exercises of the day were closed by music from the Manchester Band, and the sports of the course were resumed and continued through the afternoon.

A meeting for discussion was held in the evening, at which time the newly elected President took the chair. An hour or more was occupied by brief speeches from Simon Brown, Esq., Col. John C. Moore, and other gentlemen, on the subject of drainage, and the application of bones as a fertilizer of the soil.

On Friday morning the Plowing Match took place, in which about thirty teams engaged. The trial was the most exciting feature of the show, and was witnessed by a large number of spectators.

At 1 o'clock, the members of the Society assembled around the platform on the exhibition ground, to listen to the announcement of the awards. Vice President Eastman, of Rockingham County, presided in the absence of the President, and the reports of the committees were read by the Secretary and his assistants.

REPORTS OF JUDGES.

BULLS.

JUDGES.—A. B. Closson, Hanover; William R. Kimball, Cornish; Daniel F. Tillotson, Orford; David Buss, Acworth.

The amount of money premiums offered in this department, was $183; the amount awarded and paid, it will be seen, was about $70. The premiums offered for best bulls without regard to breed, were awarded in every instance to animals of mixed blood, as follows:

Norman Hibbard, of Meriden village, Plainfield, first premium, on 3 years old bull, half Devon,	$15 00
Isaac Hubbard, Claremont, second premium, on 3 years old, half Ayrshire,	10 00
George K. Wright, Keene, third premium, on 4 years old, Devon and Durham,	5 00

DEVONS.

George Joslyn, Surry, first premium on bull, 3 years old,	$8 00
L. A. & D. P. Adams, Jaffrey, second premium,	5 00
Third, not awarded.	
First on 2 years old, not given.	
David Buffum, Walpole, second,	3 00
Third, not awarded.	
First and third on yearlings not awarded.	
Martin Spaulding, Sullivan, second,	2 00

DURHAMS.

No premiums were bestowed on Durhams over 3 years.

S. W. Buffum, Winchester, first premium, on 2 years old, $5 00
Geo. W. Hammond, Gilsum, second, 3 00
Hosea Chase, Keene, third, Transactions.
Sylvester Smith, Wilmington, Vt., for a very superior bull, 4 years old; the committee being forbidden by the rules of the Society to give a cash premium, recommend A medal.

HEREFORD.

George Joslyn, Surry, for yearling, Diploma.
This was the only award made in this class.

AYRSHIRE.

No awards.

MIXED BLOODS.

No awards were made on mixed bloods, 3 years old, except to
J. K. Smith, Dublin, for 3 years old, Transactions.
Granville Gilmore, Acworth, first premium on 2 years old, half Durham and half Devon, $5 00
Danford Rice, Claremont, second, 3 00
P. F. Aldrich, Swanzey, third, Transactions.
Willard Holden, Langdon, for 2 years old, half Devon, Medal.
Daniel G. Jones, Dublin, for bull 14 months old, (Creampot,) Diploma.

NATIVES.

No premiums were distributed on Natives.

CALVES.

Nims & Mason, Sullivan, first premium for bull calf, seven-eighths Durham,	$5 00
George Joslyn, Surry, second, 5 months old, mixed,	3 00
Henry Prentiss, Langdon, third, half Devon, 6 mos. old.	Transactions.

COWS.

JUDGES.—John S. Walker, Claremont; P. F. Aldrich, Swanzey; William S. Curtice, Danbury; Samuel Brown, Manchester.

Nearly the full amount of premiums offered in this department were awarded, though no premiums were distributed for the animals without regard to breed.

NATIVE.

Aaron Davis, Keene, first premium,	$8 00
Geo. Joslyn, Surry, second,	5 00
Henry O'Dond, Keene, third,	3 00

MIXED BLOOD.

A. Jones, Keene, first premium,	$8 00
D. G. Jones, Dublin, second,	5 00
D. W. Mason, Sullivan, third,	3 00
A. M. Graves, Walpole, fourth,	Transactions.

DEVON.

David Buffum, Walpole, first premium,	$8 00
Martin Spalding, Sullivan, second,	5 00
W. G. Buffum, Walpole, third,	3 00

DURHAM.

S. W. Buffum, Winchester, first premium,	$8 00
S. W. Buffum, second,	5 00
J. Foster, Nelson, third,	3 00

AYRSHIRE.

Isaac Hubbard, Claremont, first premium,	$8 00

The committee are fully aware of the difficulty of making awards which will be satisfactory to all the exhibitors, and are also aware that they may be doing injustice to some of them. They would have been glad had they been at liberty to award a greater number of premiums; but limited as they are by the rules, they have made up the premium list according to their best judgment. P. F. Aldrich, of Swanzey, is deserving of honorable mention for his 4 fine cows, exhibited as herd stock, not for premium.

There seems to be an entire absence of statements in regard to the quantity of milk yielded by any of these premium cows, though the following rule has been in force for several years:

"The premiums are offered for the best *milch* cows of the several breeds. Trial of the number of pounds and quarts of milk yielded by each cow must be had during one week in June, commencing Monday the 19th, and one week in September, commencing on Monday the 4th,—the cow to be fed on grass only during the trial, the statement to be exact and accompanied by the affidavit of the exhibitor and another person."

HEIFERS.

JUDGES.—Robert Elwell, Langdon; John Richardson, Orford; Whitcomb French, Peterboro'.

The Judges make the following awards, without considering the breed:

James Bennett, Westmoreland, first premium, Durham, 2 years old, $8 00
Aaron M. Graves, Walpole, second, Teeswater, 2 years old, 5 00
Thomas M. Edwards, Keene, Devon, 2 years old, 3 00

Mixed Blood.

J. B. Elliott, Keene, first premium on 2 years old, half Devon, $6 00
Aaron M. Graves, Walpole, second, half Teeswater, 4 00
" " " " third, " " 2 00
George Joslyn, Surry, fourth, half Ayrshire, Transactions.
Wm. G. Buffum, Walpole, first premium on yearlings, 4 00
Danford Rice, West Claremont, second, 2 00
" " " " third, Transactions.

Devons.

David Buffum, Walpole, first premium on 2 years old, $6 00
" " " second, 4 00
Abijah Wilder, Keene, third, 2 00
" " " fourth, Transactions.
Abijah Wilder, Keene, first premium on yearlings, 4 00
Gilbert Burt, Winchester, second, 2 00

Durhams.

Reuben Kendall, Westmoreland, first premium on 2 years old, $6 00
George Joslyn, Surry, second, 4 00
S. W. Buffum, Winchester, first premium on yearlings, 4 00
S. W. Buffum, Winchester, second, 2 00

WORKING OXEN.—County Teams.

Judges.—John M. Glidden, Charlestown; Solomon Dodge, New Boston; Levi Parker, Lisbon; Charles F. Wilson, Sullivan.

There were but four teams entered, and the committee are of the opinion that they are all entitled to premiums. They have awarded one, the Sullivan county team, presented by Robert Elwell, the first premium, $40 00

On the Cheshire county team entered by Mason & Nims, the second, 30 00

On the one entered by Alfred Lawrence, of Cheshire county, the third, 20 00

On that entered by Wm. Goodenow, of Cheshire county, the fourth, 10 copies of Transactions.

The following was received from one member of the committee, after the matter was arranged for the press:

"There were four county teams of working oxen entered for premiums,—one from Sullivan county, and three from Cheshire county—and such teams no county need be ashamed of. The show of working oxen has been the greatest attraction at our Cheshire county fair, and I think one of the greatest at the State Fair. And well it may be; for we depend almost entirely on the ox for all our hard work.—Our granite soil needs the strong, patient, and courageous ox to clear the land from trees and stones, and break the soil for the reception of the seed.

So far as my observation has extended I never witnessed a better show of working oxen, than at our State Fair at Keene last fall. The team from Sullivan county, of ten yoke, was all of the right sort, not bred entirely for fancy, but combining fancy with endurance, being large in bone and muscle and well covered with flesh. The judges awarded to that team the first premium offered.

There were three teams from Cheshire county—one under

the name of Mason & Nims, of ten yoke, mostly four and five years old oxen, which, considering the age, were very large, completely matched, beautifully formed, and from the amount of flesh they carried, showed most conclusively that they came from a land of plenty. The judges awarded to that team the second premium offered.

The team entered by Alfred Lawrence, of ten yoke, was a fine team, not so uniformly of a size as the others but showing in a remarkable degree those qualities indispensable to a good working team, being all of good size and shape, and well matched and in excellent condition, showing that while they were worked hard they were well cared for by their owners. The judges awarded to this team the third premium.

The team entered by Mr. Goodenow, took the remainder of the oxen from Cheshire county, at the Fair, which, if not quite as good as the others, was all that could be said against them; they were excellent oxen, of good size and form, in good condition, and showed that they were emphatically what they were entered for, *working oxen.*"

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Town Teams.

Judges.—A. B. Hodgkins, Walpole; Ziba Severance, Andover; S. L. Slader, Langdon.

The committee on town teams having attended to the duties assigned them, report that eight town teams were entered for premiums, viz: one by the town of Sullivan; two by the town of Keene; one by the town of Marlboro'; one by the town of Langdon; one by the town of Unity, and one by the town of Walpole.

Your committee, after a careful comparison of the age, weight, form and general appearance of the several teams, have awarded the premiums as follows:

To the town of Langdon, the first premium, average weight 3635 lbs.; age 6 years, $15 00
To the town of Sullivan, the second, average weight 3398 lbs.; age a fraction less than 5 years, 10 00
To the town of Keene, the third, average weight 3593 lbs.; average age a fraction less than 6 years, 5 copies of Transactions.

The team presented by the town of Marlboro' is a splendid team, and your committee would feel gratified if they had a fourth premium to award them; average weight 3476 lbs.; age a fraction short of 6 years.

The team presented by the town of Unity, is a fine team but not so good in size and general appearance as the above.

The team presented by the town of Walpole, is a fine young team, average age a fraction over 4 years, weight not known.

The second team presented by the town of Keene, is a fine team, but little less in weight than their other, but not of so good an appearance.

Single Teams.

Judges.—J. H. Melville, Nelson; Amos Cutler, Rindge; D. G. Jones, Dublin; R. M. Rossiter, Milford; T. K. Ames, Peterboro'; Lewis Chamberlin, Dover.

George K. Wright, Keene, first premium, for oxen over 5 years old, $12 00
Robert Elwell, Langdon, second, 8 00
Lucius Nims, Sullivan, third, 4 00
Edward B. Wilder, Keene, fourth, Transactions.
A. & O. Seward, Sullivan, first premium, for yoke, 4 years old, 8 00

James Cram, Unity, second premium, $5 00
George D. Kingsbury, Walpole, third, 3 00
George Crehore, Surry, fourth, Transactions.
Chas. Hapgood, Bellows Falls, Vt., fine pair, Commended.

STEERS.

JUDGES.—Jonathan Harvey, Jr., Surry; George Bundy, Walpole; Granville Gilmore, Acworth; John Stearns, Hinsdale.

TOWN TEAMS.

Town of Langdon, first premium, for 3 yokes, $12 00
Town of Roxbury, second, 9 00
Town of Unity, third, 6 00
Town of Sullivan, fourth, 3 copies of Transactions.

SINGLE YOKES.

Daniel Abbott, Surry, first premium on 3 years old, $6 00
George Harvey, Marlboro', second, 4 00
Ezra J. Glidden, Unity, third, 2 00
Franklin Smith, Langdon fourth, Transactions.
Ezra J. Glidden, Unity, first premium on 2 years old, 5 00
D. W. Buckminster, Roxbury, second, 3 00
S. W. Buffum, Winchester, third, Transactions.
Benjamin Reed, Swanzey, first premium on yearlings, 4 00
S. W. Buffum, Winchester, second, 2 00
Ezra J. Glidden, Unity, third, Transactions.
Charles Watkins, Walpole, for a pair of beautiful twin steers, Diploma.

S. W. Buffum, Winchester, first premium on steer calves, $3 00
George K. Wright, Keene, second, 2 00
John Colony, Keene, for extra steer calf, Diploma.
Jonathan Harvey, Jr., Surry, first premium, for best trained steers—by Oscar Blake, 13 years of age, 6 00
H. A. Bryant, Fitzwilliam, aged 15 years, second premium—steers trained by himself, 4 00
George Harvey, Marlboro', third, for steers trained by his son, 13 years of age, Transactions.
Joseph and Whitney Buckminster, Roxbury,—8 and 9 years of age—for their skill in training steers exhibited by their father, D. W. Buckminster, Diploma.

BEEF CATTLE.

JUDGES.—Isaiah Gould, Stoddard; Joseph L. Cilley, Exeter; Jeremiah Roberts, Farmington.

John Colony, Keene, first premium on fat cattle, $12 00
E. J. Glidden, Unity, second, 8 00
John Endicott, Newport, first premium on fat ox, 5 00
Isaac Hubbard, Claremont, second, Transactions.
J. Bennett, Westmoreland, first premium for fat cow, 5 00
George Joslyn, Surry, second, Transactions.

HERDS OF CATTLE.

JUDGES.—Brooks Shattuck, Bedford; E. J. Glidden, Unity.

Charles Watkins, Walpole, first premium, $10 00
P. F. Aldrich, Swanzey, second, 5 00
Geo. K. Wright, Keene, third,

STALLIONS.

JUDGES.—George O. Hilton, South Newmarket; Warren Shelby, Westmoreland; John Lawrence, Keene; Wm. F. Estes, Dover.

Uberto Bowen, Richmond, first premium for best for road and farm—the "Ashuelot Morgan"—10 years old, from the Woodbury Morgan Stock, $20 00
Ira Hodgkins, Keene, second,—12 years old, from Sherman Morgan Stock, 15 00
Iram Woods, Hancock, third,—9 years old, from Sherman Morgan Stock, 10 00
Henry H. Smith, Newmarket, first premium, for speed—6 years old, Messenger and English blood, 20 00
Time—3:4.
John H. Lougee, Gilmanton Iron Works, second,—Morgan—5 years old, 15 00
Time—3:20.
George Hayward, Hancock, third,—4 years old—Morgan, 10 00
Time—3:58.
Sullivan Cross, Swanzey, first premium on young horse, for road and farm—Woodbury Morgan breed—4 years old, 15 00
Abel Chase, Milford, second, 2 years old colt—Morgan, 10 00
Ebenezer Proctor, Alstead, third, Bullrush Morgan—4 years old, 5 00

Layton Martin, Keene, first premium on young horse, for speed—Green Mountain Morgan—4 years old, $15 00
Time—3 : 17.

D. M. Taggart, Goffstown, second—"Black Warrior"—3 years old, 10 00
Time—3 : 19.

John S. Carr, Goffstown, third—"Young America," 3 years old Morgan, 5 00

MATCHED HORSES, AND WORK HORSES.

JUDGES.—William H. Hill, Manchester; J. W. Savage, Lisbon; J. M. Tyler, Pelham; George Thatcher, Marlboro'.

Otis Wright, Brookline, first premium for matched horses—Black Morgan, 6 years old, $15 00

Charles Gates, Lebanon, second—Bay, 6 years old, 10 00

John E. Woodbury, Orford, third—Bay, part Morgan, 6 years old, 5 00

L. W. Dinsmore, Paper Mill Village, Alstead, first premium for work horses, 6 and 7 years old, Gifford Morgan, 10 00

J. B. Elliott, Keene, second, 6 and 7 years old, 8 00

Richard H. Kent, Orford, third, 5 00

Uberto Bowen, Richmond, for pair matched horses, recently from Vermont, 4 and 5 years old, black Morgans, Diploma.

Stilman French, Keene, for pair recently from New York, 6 years old, black, Diploma.

Samuel Chickering, Westmoreland, for pair recently from Vermont, 3 years old, Black Hawk, Transactions.

A. Aldrich, Winchester, Mass., for pair work horses, Morgan, Diploma.

MARES AND FOAL.

JUDGES.—J. C. Eastman, Hampstead; J. Wilcox, Newport; E. F. Gove, Weare.

C. Pike, Cornish, first premium, mare 17 years old, Morgan,	$10 00
Frank Smith, Langdon, second, mare 11 years old,	7 00
S. Cross, Swanzey, third, Woodbury Morgan, mare 5 years old,	3 00

CARRIAGE HORSES.—GELDINGS AND MARES.

JUDGES.—C. C. P. Harris, Nelson; Moses Emerson, Boscawen; S. Slade, Jr., Alstead; S. F. Wright, Nashua.

However your committee may have deviated from justice and differed in opinion, yet on one point they have been all of one opinion, viz.: that their duty has been extensive, difficult, and severe. There were 70 entries made for premiums, and the show was most beautiful. The competition in many instances was of the closest character.

Your committee cannot pass by those fine animals from beyond the boundary of the State, without remarking that they were very fine in appearance, and did credit to their owners, and added to our show, yet according to the rules of our Society we could only award to such, Transactions or Diplomas.

Your committee have come to the following result:

John Haseltine, Orford, first premium on Morgan gelding, 5 years old,	$8 00
John Kingsley, Peterboro', second, on mare, 7 years old,	5 00

Selden F. White, Keene, on gelding Morgan, 9 years old, Transactions.
Dudley Smith, Dover, on horse 6 years old, Messenger and Morgan, for best time, Transactions.
R. Smith, Concord, on gelding 6 years old, for good time, Transactions.
D. M. Taggart, Goffstown, on gelding 5 years old, Morgan, for good time, Transactions.
E. F. Reed, Swanzey, for mare, Woodbury Morgan, Transactions.
John Roby, Weare, gelding, 4 years old, Transactions.
A. W. Twitchell, Athol, Mass., on mare, 6 years old, English and Hamiltonian. Transactions.
L. D. Wilber, Randolph, Mass., on gelding, 4 years old, Morgan, Transactions.
J. L. Briggs, Springfield, Mass., on mare, 6 years old, Transactions.
Jesse Brown, Petersham, Mass., on mare, 4 years old, Morgan, Transactions.
E. C. Cross, Guilford, Vt., on gelding, 6 years old, Transactions.
G. C. Lawrence, Brattleboro', Vt., on gelding, 7 years old, Transactions.

COLTS.

JUDGES.—George K. Wright, Keene; I. P. Breed, Unity; C. K. Drake, Effingham.

John Roby, Weare, first premium on best mare colt,	$8 00
Alfred Stratton, West Swanzey, second,	5 00
Willard Dort, Keene, third,	3 00

A. O. Felt, Jaffrey, fourth,	Transactions.
J. A. Chamberlin, Westmoreland, first premium on best gelding,	$8 00
T. H. Leverett, Keene, second,	5 00
Henry Leader, Keene, third,	3 00

Samuel Wheat, of Putney, Vt., presented a three years old colt. For beauty, ease of movement, and good training, this colt was not surpassed by any on the ground, and your committee would recommend the Society's Diploma.

SHEEP.—Long Wooled and South Downs.

Judges.—Asa Maynard, Marlboro'; B. Britton, Surry; C. F. Chase, Hampton Falls.

We found six lots entered for a premium, all very good sheep, which reflect credit, and we hope, return a profit to their owners.

Aaron M. Graves, Walpole, first premium on long wool buck,	$6 00
Charles N. Wilder, Keene, second,	4 00
Alanson Cobb, Westmoreland, third,	Transactions.
David Russell, Walpole, first premium on ewes,	6 00
F. A. Wier, Walpole, second,	4 00
Aaron M. Graves, Walpole, third,	Transactions.
F. A. Wier, Walpole, first premium on lambs,	6 00
F. A. Wier, Walpole, second,	4 00
David Russell, Walpole, third,	Transactions.

On South Down sheep, the committee would say that there appeared to be not much competition, as there were

but two lots entered for a premium; but those entered were very good sheep and well worthy of the premiums awarded to them. They award to

Paul F. Aldrich, Swanzey, the first premium on buck, mixed,	$6 00
Geo. Harvey, Marlborough, first premium on ewes,	6 00
Paul F. Aldrich, Swanzey, second,	4 00
Paul F. Aldrich, Swanzey, first premium on lambs,	6 00
Geo. Harvey, Marlboro', second,	4 00

SHEEP.—FINE WOOL.

JUDGES.—Milan Harris, Harrisville; Selim Frost, Sullivan; Allen Slade, Alstead;

The committee found a large amount of entries, consisting of full and half blood French Merinos, full and half blood Saxony, full blood Merinos, together with other crosses.

A part only of the competitors had complied fully with the rules in regard to the exhibition of the fleeces.

The amount of entries of different bloods, the limited number of premiums offered, and the rules of the Society not having been fully complied with in all cases, rendered it extremely difficult for the judges to satisfy themselves, and, probably much more so, to satisfy the competitors.

The committee, however, came to the conclusion to award premiums as follows, viz.: to

Charles Watkins, Walpole, best buck, first premium,	$10 00
Geo. D. Kingsbury, Walpole, second,	8 00
George Bundy, Walpole, third,	5 00
E. Proctor, Alstead, fourth,	Transactions.
David Wilson, Swanzey, for buck, half French,	Transactions.
Geo. P. Haven, Plainfield, for a French Merino buck.	Transactions.
O. H. P. Watkins, for a Merino buck,	Diploma.

Ewes.

David Wilson, Swanzey, best 5 ewes, first premium, $10 00
E. Proctor, Alstead, second, 8 00
George Bundy, Walpole, third, 5 00
Geo. D. Kingsbury, Walpole, fourth, Transactions.
Charles Watkins, Walpole, for 5 Merino and Saxony ewes, Transactions.

Lambs.

Geo. Bundy, Walpole, for the best 5 lambs, first premium, $7 00
Charles Watkins, Walpole, second, 5 00
Geo. D. Kingsbury, Walpole, third, Transactions.
O. H. P. Watkins, Walpole, fourth, Transactions.

Your committee commend the spirit of enterprise manifested in the improvement of stock, by the introduction of foreign breeds, (by those who are able to do it,) and look upon them as benefactors of the country. But, in the first introduction of such breeds to this country and climate, it must be an experiment whether they will eventually prove beneficial to the country or farmer, either as as pure bloods or crosses. We consider this the case with the French Merinos at the present time.

There were several full blood and half blood French Merinos, with and aside from those, which were entered by David Wilson, of Swanzey, Charles Metcalf, of Keene, Geo. P. Haven, of Plainfield, and Prescott Coburn, of Keene, which commend their spirit of enterprise.

FAT SHEEP.

Judges.—J. K. Smith, Dublin; D. Buffum, Walpole,

F. A. Wier, Walpole, first premium, $5 00
P. F. Aldrich, Swanzey, second, 2 00

The farmers of New Hampshire have made *wool-growing* the principal object of keeping sheep. The several varieties of the Merino are therefore almost exclusively raised for this purpose. As is well known these are all inferior as mutton sheep.

The natives, the Irish, the South Downs, the Leicester, and the Cotswold, present a larger carcass, and, where the pasturage is good, are much more profitable for *mutton* than the Merinos. But it is well known that much of the pasture land in the State is not adapted to fattening sheep of any kind. Where this is the case, the smaller varieties of sheep, with their compact fleeces of fine wool, are found to be the most profitable for the farmer.

The committee found but two entries of fat sheep, and, as both were considered worthy of premiums, they had no difficulty in coming to a decision.

Frederick A. Wier, of Walpole, presented a very superior lot of Cotswold sheep—large, well formed, and fat—which were considered as eminently deserving the first premium of five dollars. Paul F. Aldrich, of Swanzey, had a lot of what appeared to be Irish sheep, that were so good as to induce the committee to award him a premium of two dollars.

SWINE.

JUDGES.—J. B. Dinsmoor, Charlestown; E. Chase, Keene; E. Marsh, Jr., Pelham.

James M. Whiton, Woodlands Farm, Holderness, first premium on boars, Suffolk, "Prince Albert," $6 00

S. W. Buffum, Winchester, second, $4 00
Grove Bidwell, Charlestown, third, 2 00
P. F. Aldrich, Swanzey, fourth, Transactions.
John Lawrence, Keene, first premium on breeding sow, 6 00
Azel Wilder, Keene, second, 4 00
James M. Whiton, Holderness, third, 2 00
E. M. Harlow, Westminster, Vt., for 10 pigs, Diploma.
S. W. Buffum, Winchester, pigs, Diploma or Transactions.
Thomas Bardwell, Walpole, on 10 pigs, Diploma or Transactions.
Prescott Coburn, Keene, on pigs, Diploma or Transactions.
A. Wilder, Keene, on pigs, Diploma or Transactions.

POULTRY.

Stilman French, Keene, for best Dorking fowls, $2 00
J. S. Blake, second, Transactions.
Geo. W. Perry, Keene, for best China fowls, 2 00
Stilman French, Keene, second, Transactions.
J. S. Blake, Keene, for best spangled Poland fowls, 2 00
Geo. Tilden, Keene, second, Transactions.
Geo. W. Perry, Keene, for best Bolton Greys, 2 00
Stilman French, Keene, second, Transactions.
F. A. Wier, Walpole, for best Bantams, 2 00
Geo. Tilden, Keene, second, Transactions.
Stilman French, Keene, for best native fowls, 2 00
Geo. W. Perry, Keene, second, Transactions.
J. S. Blake, Keene, for best ducks, 2 00
G. D. Kingsbury, Walpole, for best Bremen geese, 2 00
J. S. Blake, Keene, second, Transactions.
D. W. Buckminster, Roxbury, for best turkies, 2 00
J. S. Blake, Keene, second, Transactions.
Stilman French, Keene, for best variety fowls, 5 00
Geo. W. Perry, Keene, second, Transactions.

FARMS AND GARDENS.

JUDGES. — Brooks Shattuck, Bedford; E. J. Glidden, Unity.

The pursuit of agriculture and horticulture possesses attractions and fascinations beyond every other pursuit. When adopted by the man of wealth for mere pleasure, without any regard to profit, how much his ardor is increased by the progress nature makes under his hand, in the growth of such trees and flowers as simply please the eye! Still more satisfied that the work of his hand brings forth rich fruit from trees which formerly produced worthless crops of the same species, and that, after the lapse of a few years, or even the growth of a single season, he is supplied with that which at once regales the sight and gratifies the appetite.

To the husbandman, his clean broad fields of growing corn, waving rye and wheat, or orchards laden with "fruit of vegetable gold," are scarcely less beautiful and attractive than the innocent charms of his own household. Every time he looks upon such fields, he views them with renewed interest. Then the enjoyment of gathering the fruitful harvest, when "autumn comes jovial on," filling the granaries, and crowning the festive board with plenty, tends to gratify the best feelings of the heart.

The farming profession in New England is yet in its infancy, and it should be the purpose of every agriculturist to improve it by teaching the true economy of the farm. Many complaints are heard from the farmer at the present time, of the high price of labor; but the price of labor must quickly adapt itself to the price of every thing produced by labor. Now it seems that the present is peculiarly the time when agriculture should be commenced and carried on as a business for the profitable investment of capital. To accomplish this end, economy must be studied. Let the learned chemist, the careful observer, together

with the practical farmer, direct their attention to this point, and farming operations will assume a new phase.

The economy of labor is an important item in the farmer's calculations. Labor saved is money saved. If, from the use of new or improved implements, as the plow, horse-hoe, seed-sower, horse-rake, mowing machine, &c., manual labor can be lessened—all this is money gained. The business of the farm should be so arranged that the laborer, in all working days, may never have occasion to remain idle, whether the system be ten, twelve, or fourteen hours daily. In the case of the employer and employed, there ought to be a mutual understanding how many hours shall constitute a day's work. The rainy days, instead of being spent by the hired man at the adjoining tavern, store, or fish pond, can be made useful and profitable, in threshing the grain, mixing materials for the compost, repairing farming implements, and in various other ways which ever present themselves to the observant farmer. Every farmer ought to arrange his plans so that each day of hired labor will bring him in a certain per cent. above the cost of hire and board, and the greater the per cent., the greater the profit, and the larger the annual increase—otherwise each year will see him approaching the little end of the horn, and his love of farming decreasing in the same proportion.

In entering upon the duties of examination, your committee found entered upon the Secretary's book three farms, two gardens, and a single herd of cattle.

The first farm examined was that of Thomas H. Leverett, Esq., of Keene. His farm lies on the east side of the Ashuelot river, containing 50 acres, all or nearly all under a good state of cultivation. Some portions of it have been brought into due subjection by considerable labor and skill in draining the wet places, and levelling up others, so that the whole begins to assume the appearance of a farm well tilled. Mr. Leverett soils his cows; keeps from eight

to twelve swine, of the Suffolk breed. Some of his crops look well, notwithstanding the severe drouth. He cultivates the beet and carrot for his cows and horses; thinks them excellent for milch cows. Mr. Leverett has used some of the artificial manures, but prefers a compost made of muck, loam and stable manure. He is certainly entitled to much praise for what he is doing, by proving to a demonstration that farming is profitable, even when carried on by hired labor, both in and out of doors—as a large portion of his time is consumed as cashier of a bank.

After partaking of an excellent farmer's dinner of eatables from his own garden, which was proof positive of its goodness, Mr. Leverett, with a part of your committee, examined a garden in the east part of the town, belonging to Ebenezer Page. The ground is so situated that it cannot be irrigated at pleasure, consequently his crops have suffered badly from drouth. We are unable to mention the different and distinct kinds of crops there growing—suffice it to say, that we counted nineteen different kinds. Most of the contents of this little farm are taken to Keene Street, and there sold at remunerating prices.

We also took a bird's eye view of a herd of cattle, belonging to Mr. Wright. His stock embraced some dozen or fifteen head of cattle, some of which were very fine specimens, particularly a pair of five years old oxen, one-half Durham, which it would be difficult to find equalled; also a fine bull, three-fourths Devon, a most noble animal.

The next morning we started for Walpole, to examine the garden of James T. Mitchell. His garden includes nearly one-half acre; the soil is a sandy loam, laid out in a tasteful manner. The grounds were devoted to flowers, grasses, ornamental and fruit trees, whilst a limited part contained the more substantial products of a good kitchen garden.

From there your committee proceeded to Hudson, to view the farm of David Clement. His farm contains va-

rious kinds of soils for all kinds of crops. Mr. Clement is one of our industrious farmers, and has done a great amount of labor in improving his lands for the last twenty years, in renovating old fruit trees, planting nurseries, including all the various kinds of fruits, subduing old bogs, reclaiming them into fruitful fields, building a new and commodious dwelling house, moving and remodeling old barns, so that all around his premises were the unmistakable signs of thrift and progress.

Sharing his hospitalities, in which his daughter acted well her part, we started for New Boston, to examine the farm of Solomon Dodge, Esq. His lands are hilly, some of which are quite steep for cultivation, yet by the hand of industry and well directed labor, they present one of the best managed premises which your committee had the pleasure of visiting.

At Manchester we examined Hon. W. C. Clarke's garden hedge. Judge Clarke has a beautiful and well arranged garden, enclosed by four hundred and fifty feet of hedge, three of which is Acacia, a nd the remainder is Buckthorn. It was set in 1847, with plants three years old. The hedge is kept closely trimmed, and receives an occasional manuring, and appears to be a perfect defense against two-legged or four-legged intruders. It may be a question well worth considering to some of our farmers, whether this kind of fence will not give the three essential things to be gained, viz.: economy, utility and beauty.

From Manchester your committee proceeded to Greenland, to view the broad acres of Col. Joshua Pierce, by invitation of that gentleman, who did not enter his farm for a premium, but merely for examination. His farm contains four hundred and fifty acres, fifty of which are covered with wood. Employs from ten to twelve hands—cuts ordinarily three hundred tons of hay—keeps eighty head of horned cattle, ten horses, and from twenty to thirty swine. He has recently built a new barn, ninety-two by

fifty, combining all the new and valuable improvements of the day. His cows are all the short horned Durham, which he considers the best. We noticed a couple of heifers, which were recently purchased for one hundred dollars a-piece—the finest we have ever seen. We had but an hour or two to ramble over the old homestead of the Pierces. The present occupant is a gentleman of fortune, and does not farm for profit, nevertheless there is much to be learned that might be adopted by farmers of less means. One thing was evident, that when wealth was lavished upon Nature she yielded a rich return of pleasure and beauty far surpassing the works of art and the cunning devices of man.

After considerable consultation, your committee agreed upon the following premiums:

Solomon Dodge, New Boston, for the best cultivated farm, second premium,	$20 00
T. H. Leverett, Keene, third,	15 00
David Clement, Hudson, fourth,	10 00
Ebenezer Page, Keene, for the best kitchen garden, second premium,	5 00
James T. Mitchell, for fancy garden,	Transactions.

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Mr. Clement's Statement.

My farm consists of one hundred acres; one-third of which is wood land. I have improved it twenty-six years. My soil is common brown loam with a hard gravel subsoil. I plow from eight to ten inches deep; have not used the subsoil plow. I keep four oxen, five cows, nine young cattle—all native breed except one half blood North Devon bull—one horse, and a two years old colt. I know of no better way to winter stock than to give them hay and corn fodder, &c.; and, two or three times a week, I give them

turnips or other root crops. The cellar under my barn is 62 by 40, with a plenty of water in it the year round. My cattle go up under the barn, so they are not obliged to go into the snow without they choose, though they have the privilege of 25 by 40 feet, if they choose. I water them twice a day, and in pleasant weather let them remain down stairs until it is time to tie them up at night, putting down fodder into the rack.

As to butter and cheese, we have weighed only what we have sold, and not keeping an account, we cannot tell the number of pounds, but I am confident we make not far from 400 lbs. of butter, and 300 lbs. of cheese, and having from ten to twelve in the family the year round, we use a good deal of milk; we churn once and sometimes twice a week, in Davis's patent churn, and my wife makes her cheese by pressing, &c.

I have four swine to kill next fall or winter—as to breed one-half Suffolk; feed three times a day. I scald the meal; shall kill one nine months old, two one year old, and one, a breeder, eighteen months, which I think will average 300 lbs. each. The breeder has eight pigs, a second litter, of which I shall keep three or four.

As to manure, we average two hundred loads, my cellar being 9 feet deep; we put in a large quantity of loam and meadow mud and mix the manure by plowing. The way I compost is this: I take one hundred loads of mud, which is made of vegetable matter, and lay it one foot or more thick, let it lie one winter and freeze, then put on from ten to fifteen loads of ashes, which I make from meadow turf and bushes, then spade it over, and it makes very good manure. I generally spread and plow in my manure, unless it is on some cool spot of land which I manure in the hill. I used six bushels of guano last spring. I do not think much of it, as I can see no difference in the rows I left. I think the same money laid out in leached ashes better to spread on or put in the hill.

My barn is full of hay and grain. My farm cost me $1400. I was offered $5000 two years ago, but should not take $6000.

DAVID CLEMENT.

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MR. DODGE'S STATEMENT.

1st. My home farm consists of one hundred and fifty acres. Adjoined to this I have about forty acres of rough pasture, wood, timber and bushes, purchased May, 1842, for which I paid $900; another lot of 85 acres lying about two and a half miles from home, purchased May, 1853, for which I paid $640; about thirty-five acres of this has been cleared of the wood of late, and is in the state in which it was left, the rest is pasturing; also sixteen acres which I purchased in 1841, for the wood and timber; this has been taken off, and in 1843 the land cleared and sown to rye, from which I raised, last year, one hundred and sixty bushels; this is light, sandy soil.

2d. My home farm, is, as near as I can judge, divided as follows: Sixty acres tillage, twenty of wood, the remainder pasturage.

3d. Generally cultivate under the hoe from six to eight acres; lay down with grain to grass, annually, from three to five acres.

4th. Cut annually from fifty-five to sixty-five tons of hay, varying with the season.

5th. I generally plant from four to five acres of corn. This crop for the last ten years preceding 1854, has, I think, averaged me from fifty-five to sixty bushels to the acre; this year, owing to the drouth, my entire crop was only about one hundred and fifty bushels from about four acres. My crop of wheat, of which I had about two acres, gave me, last year, twenty-five bushels; this contrasted with '42, when I was very particular in measurement, and, from two

acres and four square rods, harvested sixty-six and a half bushels, the land in both cases receiving the same cultivation.

6th. I devote one-third of an acre to carrots; this crop, for the last three or four years preceding 1854, gave me an average of two hundred and fifty bushels, this year but one hundred.

7th. I have, as a general thing, seeded my ground to grass in the spring; this I do by applying one and a half bushel wheat, or two of barley, or one and a half rye, one-half bushel herds-grass, one-half red-top, five lbs. clover, to the acre. I have, in some instances, sown in fall with good success.

8th. As yet I have top dressed but a little; this I should like to do as soon as may be after the crop is taken off; when I have done this it has paid well.

9th. I have never used guano.

10th. My stock consisted in the fall of 1854, when the committee were here, of three pairs of oxen, three pairs three years old steers, three pairs two years old, three two years old heifers, six cows, and one three years old heifer in milk, seven yearlings, and seven calves, one horse, two three years old colts, and twenty sheep. Fatted 1500 lbs. pork.

11th. My method of preparing my ground is, as a general rule, as follows: Break up my ground eight inches deep; this I do, when practicable, as near the time of planting as possible; harrow thoroughly; furrow, disturbing the sod as little as possible; manure in the hill with compost taken from the yards in the fall, for corn, and, directly from the barn yard, for potatoes. My rule is to plant two years; the second year I plow my ground stirring it to the full depth, then harrow; apply from thirty to thirty-five ox-cart loads of compost manure to the acre from my barn cellar; spread and plow under as quick as I can after it is out on the ground, furrow lightly as possible, plant to corn, culti-

vate well, and this crop is a profitable one; this ground I plow twice; the next spring sow down to grass with wheat, barley, or rye.

SOLOMON DODGE.

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The Secretary finds the following statement in relation to Mr. Kingsbury's orchard, which was probably never considered, from the fact that the subject was referred to the Committee on Farms, and the statement was not made till the Fair:

This certifies that my orchard consists of nearly three hundred trees; two hundred being in a bearing state. They were set out, except some that stand where they first came up, from five to forty years ago; my trees were grafted with different sorts after they were set into the orchard. I generally cut out all of the dead and cross limbs, and such others each year, and of such others as appear necessary in April or May; they have been manured and dug around occasionally until 1852, when I manured them with twelve loads of manure consisting partly of meadow mud mixed with ashes, and oyster shell lime mixed with chip manure and with manure from the yard. Last year the palmer worm destroyed nearly all of my apples, so I could not judge very accurately as to the effect; this year my trees did not blossom so full as usual, but the apples which have grown are fair. I do not see any difference between those manured with mud and ashes and those with chip manure and oyster shell lime, but they have done much better than those manured from the yard. Also in the spring of 1853, my trees dug round and scraped, sold besides what I used in 1852, $85 of apples.

SETH KINGSBURY.

Roxbury, Oct. 2d, 1854.

PLOWING WITH OXEN.

JUDGES.—John M. Glidden, Charlestown; Caleb Carpenter, Keene; William P. Riddle, Manchester; George Harvey, Marlboro'; Joel Baker, Lebanon; D. P. Wheeler, Orford.

The committee on plowing with oxen, submit the following report:

The number of teams entered was unusually large (21 teams) and the competition very spirited. The oxen were all good, and most of them well disciplined.

One pair owned and driven by John Hazelton, of Orford, who held the plow, were very fine cattle, walking with as fine action as most horses, and showed the effect of matching and training, when performed by one who understands the connection of authority and education in his art.

One pair owned by F. A. Wier, of Walpole, were nearly as well trained; and one pair of 4 years old, owned by G. D. Kingsbury, of Walpole, were very fine, but not old enough to compete in draft or skill. Many more were especially noticed by the committee. The adaptation of plows in relation to depth, width, and draft, was complete in many instances, and we hope this necessary gauging of plows was noticed by all the farmers present, as the best plow will not do good work unless the width of furrow-slice and depth have a relative relation.

One fine plow perfected by John Hazelton of Orford, called the Strickland Plow, has points about it, worthy of critical examination; also one side hill plow, made by Ruggles, Nourse & Mason, intended for plowing a level field, ought to be encouraged; although the desired object is not quite attained.

The committee were unanimous in the opinion that Col. Hazelton's invention of a plow which guides itself without a holder, doing as good work as is done in most fields, is

worthy of a medal, and if we are not trespassing on the duties assigned to others we recommend such a premium.

Col. John Hazelton, Orford, first premium,	$9 00
F. A. Wier, Walpole, second,	7 00
S. A. Town, Keene, third,	5 00
E. H. Ingalls, Keene, fourth,	3 00
A. S. Blake, Keene, fifth,	Transactions.
Robert Elwell, Langdon, for plowing with Michigan Plow,	Diploma.
E. K. Wright, Keene,	Diploma.
A. Lawrence, Keene,	Diploma.
A. H. Town,	Diploma.
Recommended as a premium on the Strickland Plow, perfected by John Hazelton, Orford, a	Medal.

PLOWING WITH HORSES.

JUDGES.—Moody Hobbs, Pelham; Abram Burbank, Boscawen; N. White, Concord; William Parker, Allenstown; H. Finley, Acworth.

The Committee on Plowing with Horses and Mules at the State Fair, 1854, respectfully ask leave to report—

That seven entries were made for plowing with horses, and one entry for performing the same service with mules.

The horses were on the ground, in charge of their attendants, promptly at the specified time, ready for action The mules,—whether from their reputed obstinacy of character, or from some other cause, we were not informed,—did not make their appearance at all, a circumstance we much regretted, as we had a great desire to witness their performances at the same time with horses, that we might the better judge of their comparative value for farm work.

The various pairs of horses were all valuable animals, and by their conduct on the occasion, it was manifest that they had all received a good education, as well as good keeping. Their drivers, or rather their *directors*, seemed to use them as if they had a just appreciation of the powers and generous natures of the animals in their charge, for we did not see the lash applied in a single instance.

The plowing was all very good, and some of it could not be excelled, so neatly and so thoroughly was it done. There was so little difference in the perfect finish of the work, in some of the specimens, that we found it very difficult in our own minds to form a conclusion, where, in justice, we should award the respective premiums, but, after a careful examination, we award the following premiums:

Richard H. Kent, Orford, first premium,	$8 00
J. B. Dinsmore, Charlestown, second,	6 00
Charles Wright, Keene, third,	4 00
Levi Chapin, Keene, fourth,	2 00
J. B. Elliot, Keene, fifth,	Transactions.

We would also recommend a gratuity to J. B. Elliot, of Keene, for specimens of plowing with the sub-soil side-hill plow, and the common sub-soil or double plow.

Mr. Kent used the "Strickland Plow," so called, improved by Col. Hazelton, of Orford. Mr. Chapin's plow was one of his own manufacture, with an attachment to the rear, by which he was enabled to regulate the depth of furrow without stopping his team. An invention which may be very useful in plowing a field consisting of various kinds and depths of soil. The other plows used were of Ruggles, Nourse & Co's manufacture.

The exhibition of the skill of the men, and the docility and power of the animals engaged in the match was to us highly gratifying. What greatly enhanced our gratification was the fact that we could conscientiously award the first

premium to a plow made by a New Hampshire mechanic when placed in competition with the justly far-famed plows of Ruggles, Nourse & Co., when held by some of their most expert and skilful plowmen. We, therefore, take especial pleasure in recommending Col. Hazelton's plow to the public favor, for neater work of the kind we never saw performed, and that too, by an apparent great ease of draft.

We would also recommend Mr. Chapin's plow to the kind consideration of the farmers of our State for its many exellencies besides the ingenious attachment for guaging its depth.

With one suggestion we close this report. Judges on plowing, as well as everything else, often find it difficult to decide where to award their premiums, so nearly alike are the merits of the competitors. Would it not be well for committees, in such cases, to divide the premiums offered, equally? We would say, however, that in awarding the *first* premium, in this case, we had no such difficulty to encounter.

GRAINS, GRASSES AND ROOTS.

JUDGES.—The Executive Committee—report made by Joseph Robinson, Esq., Concord.

The Committee on Grain, Grass and Root Crops, having attended to the duty assigned them, respectfully submit the following report:

WHEAT.

But two entries of this important staple were made for premium. One by Daniel Fisk, of Dublin, to whom is

awarded, for the best acre of wheat, the first premium of $10.

The ground was broken up in the fall of 1851, having been mowed ten years without dressing. In 1852 planted with potatoes—twenty loads of stable manure to the acre. In 1853 planted with corn, spreading on eight loads of green manure, and putting twenty loads of rotted manure in the hill. In 1854 split the hills, harrowed thoroughly, spread on ten loads stable manure, plowed and harrowed it again. Sowed two bushels and ten quarts of wheat, washed and mixed with lime. Soil, a gravelly loam. Product, 32 1-2 bushels.

L. A. & D. P. Adams, of Jaffrey, on 184 rods, raised 29 bushels, being a fraction over 25 bushels to the acre. Soil, to use their own language, a medium loam—broke up in the fall of 1852, planted with corn in 1853—35 loads of manure to the acre; plowed twice last spring, and sowed May 26th, 1 1-2 bushels per acre. To them the second premium is awarded.

The ravages of the weevil and the blight, have for years so far discouraged our farmers that the cultivation of wheat has by a great many of them been discontinued. Yet it is believed by your committee, that it will prove to be good economy for every farmer in New Hampshire, especially those upon upland farms, at the present exorbitant price of flour, to raise their own wheat, and not depend on the South or West for bread.

Corn.

It is to be regretted that the grand staple, not only of New England, but of the United States—a product of more aggregate value than any other in the country, and that enters so largely into the consumption of both man and beast—should excite so little competition among

the farmers of our state. It is a very important product, not only as regards the value of the crops, but as necessarily affording, if properly cultivated, one of the best preparations of the soil for the various finer grains and grasses.

To Rufus E. Sanborn, Hampton Falls, the only person who has entered for premium and furnished the proper statement, is awarded $10, for the best acre of corn.

Soil, a sandy loam, broken up May 2d, 1854, with the Michigan sod plow, 12 inches deep, then harrowed; spread on five cords barn manure, five cords of hog compost, and 200 lbs. Peruvian guano; harrowed again, then plowed five or six inches deep, and again well harrowed. Planted May 13, rows 3 feet apart each way; applied 100 lbs. guano to the hill, mixing well with the soil with the hoe. Planted Brown corn, 7 or 8 kernels to the hill, thinned to four the second time hoeing. Applied 200 lbs guano about the hill the second time hoeing. Hoed twice and cultivated three times in June; hoed once in July without cultivating; hill flat. Cut stalks Aug. 30, harvested Sept. 27. Product 98 bushels, 3 pecks, 1 5-10 quarts; affording, as the following statement of expenses will show, at one dollar per bushel, a net profit of $63 per acre, and, at the present high price of corn, a profit of more than $100.

10 cords manure at $3 per cord,	$30 00
500 lbs. Peruvian guano, at $54 per ton,	13 50
Carting and spreading manure,	3 50
Plowing and harrowing,	6 50
Planting,	2 00
Cultivating and hoeing,	8 00
Harvesting and husking,	7 00
Half bushel seed,	50
Interest on land and taxes,	6 50
Total,	$77 50

The value of the crop is as follows, viz:

98 bushels, 3 pecks, and 1 5-10 quarts, at $1 per bushel,	$98 75
Stalks, butts and husks,	20 00
Half the manure unspent,	21 75
	$140 50
Deduct expense,	77 50
Net profit on one acre,	$63 00

Who can doubt, then, that an article that can be made so profitable, to the growth of which our climate and soil are so well adapted, and which so seldom disappoints the hopes of the husbandman, should be produced in sufficient quantities, at least, for home consumption? It is feared there are too many mouths for the hands that labor. Let more men cultivate the soil and we shall not long be troubled with the unusually high prices of bread-stuffs.

Barley.

For the premium on barley, Jonathan K. Smith, of Dublin, had no competitor. But not deeming that circumstance a sufficient reason why an individual, who has complied with the rules of the society, and made a good crop, should be disregarded, your committee have awarded to him the first premium of $5.

Soil, clay loam, with clayey, hard pan subsoil; broken up in the fall of 1852, planted with corn and potatoes in 1853. Spread on green manure liberally, and manured lightly in the hill; in 1854 applied 20 loads manure, spread evenly and plowed in; harrowed well, and June 6th sowed 4 bushels barley, harrowed and rolled. Product 42 bushels and 7 quarts per acre.

Barley is a somewhat uncertain crop, but is considered about equal in value to corn to feed to stock. It matures so much earlier than corn, that it is quite an object to raise it for the feeding of swine. Besides it is an excellent grain with which to stock down land.

Herds-Grass and Clover.

The premium of $5 is awarded to William R. Kimball, of Cornish, for the best acre of herds-grass and clover.

The following is Mr. Kimball's statement of the culture, &c.:

In the fall of 1850 broke up; in the spring of 1851 manured heavily and cultivated strong, and planted with corn, using my kind of compost in the hill; in 1852 plowed in 50 loads of manure to the acre, and planted the second year with corn; the next crop was wheat; with this crop of wheat I sowed on grass seed. The drought was so severe that it killed the grass. The first of September, 1853, I turned the stubble under and sowed a very heavy stock of herds-grass and clover seed, and harrowed it in.

Hops.

Gen. W. P. Riddle, of Manchester, and C. E. Cooke, of Alstead, entered for premium on Hops, and produced fine specimens of the article at the State Fair. Those of Mr. Cooke were nicely pressed and baled.

Gen. Riddle has had much experience in hop growing, and understands its cultivation better, perhaps, than any other man in the State. We award him the first premium of $5. Below is his statement:

Half acre of ground set with hops, and eight successive

crops taken from it. Plowed open the hills in May; trimmed the roots, and applied a small shovel-full of compost to each hill; covered the roots again and set the poles; hoed three times; in July added a pint of leached ashes, mixed with lime, to a hill. Product, 669 lbs. first sort of hops of superior quality.

Value of 669 lbs. hops at 30 cents,		$200 70
Interest on land, and taxes,	$2 00	
Expense of cultivation,	41 14	
		43 14
Profit,		$157 56

To Mr. Cooke was awarded the second premium, the "Transactions." Below is his statement:

"My hop field consists of two acres of hill or upland, being mellow loam with hard pan bottom, part having been to hops seven years, the rest two. The acre entered was measured from one corner of the piece taking across the new yard on to the old about half on each. The manner of cultivation for three years, as follows:—Plow early in the spring, turning from the rows; open the hills, prune and manure; set the poles at a proper time, hoe to keep the weeds down, two or three times, as the case requires, using the plow the first time, and the cultivator afterwards. The new yard (owing to the dry season,) was not well rooted, and, last year, had very few hops on it. This year they were extremely large and good. This field was cultivated the same as the other, excepting last year it was manured on the top of the hill in the fall and not opened in the spring. The third year back it was in corn, the sod being turned in the spring before planting. The manure used has been mostly a compost, formed of one half barnyard manure, the other half muck or wash from the roadside, drawn together in the fall, in the spring adding a suitable quantity of ashes and lime, and mixed it well to-

gether. I think this equal to or better than barn yard manure. Used seven loads to the acre each year.

The acre measured contains 868 hills, and upon the new yard I find 41 hills without hops, leaving 827 bearing hills, producing 900 lbs. inspected weight. Had I known a half acre would have answered, I think I could have measured one from the new yard which would have produced at least 500 lbs."

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Carrots.

The last article to be considered in this report is carrots.

This root is so easily raised, is so productive, and makes such an excellent feed for horses and hogs, and all kinds of neat stock, that your committee are gratified to notice the increased interest it is exciting among our farmers. To Charles Reed, of Fitzwilliam, is awarded the first premium; and the second to Rufus C. Sanborn, of Hampton Falls.

Entries were also made by A. B. Closson of Hanover, S. W. Buffum of Winchester, and Jesse R. Fitts of Candia, each of whom presented fine specimens at the Fair. Below is Mr. Reed's statement:

The land is in a high state of cultivation, and a good deep and mellow soil, well manured, lying to the south, rather inclining, on which are are some young apple trees, very fine, having been set four or five years, and well cultivated.

This may certify that I have measured a piece of ground for Mr. Charles Reed, containing 40 square rods, on which were raised the present season 300 baskets of carrots, weighing 75 lbs. each. Calling 50 lbs. a bushel, would make 450 bushels, or 22,500 lbs. I assisted in harvesting

and putting the carrots into the cellar. They were the long orange carrot and of large size.

THOMAS S. GORMAN.

—

MR. SANBORN'S STATEMENT.

The piece of land entered by me for a premium on carrots measures one-fourth of an acre. The soil is a sandy loam, and was sown to carrots the last year. There were four cords of compost manure applied in the spring of 1853. After the crop was taken off in October, which was 151 1-2 bushels, I carted on to the piece four cords of manure from the barn cellar, and plowed under; in November I put on about three cords of swamp muck. The land plowed again about the 20th of May, twelve inches deep, then harrowed and rolled, until the ground was thoroughly pulverised. I then raked the ground and sowed one pound of the orange carrot seed with a seed-sower, the 27th of May. The carrots were sown in rows 18 inches apart, and thinned to six inches in the rows. They were hoed five or six times, the ground kept mellow, and no weeds allowed to grow.

The expense of raising the carrots is as follows, viz.:

Carting manure,	$2 00
Plowing, harrowing and rolling,	1 75
Raking the ground and sowing,	75
Seed,	87
Weeding, thinning and hoeing,	7 00
Interest on land and taxes,	1 50
Manure, 4 cords at $3 per cord,	12 00
Swamp muck, 3 cords at 50 cent per cord,	1 50
Harvesting,	5 00
Total expense,	$32 37

The value of the carrots is as follows:

264 1-2 bushels, at 30 cents per bushel,	$79 35
Half of the manure unspent,	6 75
Total value of crop,	$86 10
Deduct expenses,	32 37
Net profit on one-fourth of an acre,	$53 73

Cost of raising carrots a little less than 10 cents per bushel, and is at the rate of 1058 bushels per acre.

Mr. Buffum's Statement.

I sowed 60 square rods to carrots. The soil is a sandy loam; half of it was manured and sowed to carrots last year; the other half was sward land broken up about the first of May, and plowed from ten to twelve inches deep.

Ten square rods were manured with 10 bushels of oyster shell lime.

Ten square rods were manured with 3 bushels of ashes and 3 of oyster shell lime.

Ten square rods were manured with 20 lbs. of Peruvian guano.

Ten square rods were manured with 20 lbs. of Mexican guano.

Ten square rods were manured with 5 bushels of ashes.

Ten square rods were manured with a cart load of 30 bushels of compost manure.

These were all spread broadcast and harrowed in. The second week in May it was raked and the seed sowed with a seed-sower, which occupied less than half a day. It was sowed in rows about eighteen inches apart. About three-fourths of a pound of seed was used. When the plants were small, a few rows were thinned and left about four

inches apart. Most of the piece grew thick as they were sown and yielded a larger quantity than those which were thinned. The least amount was produced where Mexican guano was applied. The greatest where the oyster shell lime was used. Owing probably to the large amount of lime applied to those 10 square rods, the carrots grown upon them looked pale and sickly in the early part of the season; during the latter part, they assumed a fine appearance, and yielded, I should think, a quarter more than any other, except where Peruvian guano was used. I raised 241 bushels of the yellow carrot on the 60 square rods. The drought rendered the crop much lighter than it would otherwise have been.

Winchester, Nov. 27, 1854.

Mr. Closson's Statement.

The patch contained one acre. Soil, a clayey loam inclining to clay, and resting on a hard clay subsoil, 12 or 15 inches from the surface, which is quite flat, and so retentive of moisture that the season is often far advanced before it can be worked to advantage. I put 20 cart loads of long manure on green sward and plowed ten inches deep with a Michigan plow. I then spread on ten loads of fine manure; sowed 100 lbs. each of guano and plaster, harrowed thoroughly, rolled with a light roller, and sowed 2 1-2 lbs. of seed, with a common seed sower, in drills 20 inches apart, on the 25th of May, which is some ten or fifteen days later than is desirable especially in a dry season.

The quarter acre which I entered for premium, is a part of the field above described, and was considered about an average of the whole. It yielded 212 bushels by measure, being at the rate of 860 bushels to the acre.

Mr. Fitts' Statement.

I selected a very deep, loamy soil, as free as possible of stones, on which I have raised carrots two years, and on a part, one year before this. In April, 1853, I manured very high; I put on about 18 ox-cart loads of common yard manure, and plowed in very deep. I sowed my seed on the 22d of May, in rows 12 inches apart. The seed came up well, and grew remarkably—by the middle of July the tops covered the ground completely, and on the 10th of Aug. they stood perfectly even, two and a half feet high, and on the 13th of Aug. a very heavy storm and wind lodged them all level with the ground, and they never came up afterwards, but rotted immediately on the ground. This affected the growth of the root very materially; a very small top grew out of each afterwards, from three to six inches high; in the fall I had "a little million" in number, and about 110 bushels.

In April, 1854, I put on one bag (139 lbs.) of Peruvian guano, sown broadcast and plowed in deep; sowed my seed on the 27th of May, in rows 16 inches apart; they have looked very promising, although the present drought is affecting them somewhat.

Candia, Nov. 13, 1854.

Mr. Adams—Sir:

I might have stated to you the other day at our interview that I have kept debt and credit with my carrot piece through the season, and as it may be somewhat interesting to your committee to know the result, I hereby send you a copy of my book account.

To 139 lbs. guano,	$5 61
" plowing twice,	1 50
" sowing the seed,	50
" seed,	50
" weeding and thinning,	7 25

" harvesting,	$6 50
" use of land,	1 25
	$23 11

One hundred and eighty-three bushels of carrots at $12 per ton, forty bushels to the ton amounts to	$54 90
	23 11
Net profit,	$31 79

JESSE R. FITTS.

The following grains which received cash premiums, became the property of the Society:

Daniel Fisk, Dublin, for best spring wheat,	$5 00
L. A. & D. P. Adams, Westmoreland, second,	3 00
Geo. D. Kingsbury, Walpole, for best winter wheat,	5 00
E. Blake, Keene, for best ears corn,	2 00
George Joslyn, Surry, second,	1 00
Dudley Britton, Surry, for best oats,	2 00
Z. S. Barstow, Keene, second,	1 00
S. W. Buffum, Winchester, for best peas,	2 00
A. Stoddard, Nelson, second,	1 00
John T. Wiswell, Marlboro', for best pole beans,	2 00
E. Blake, Keene, second,	1 00
Danford Rice, Claremont, for best bush beans,	2 00
Geo. Harvey, Marlboro', second,	1 00
Geo. W. Hammond, Gilsum, for best millet,	2 00
Geo. Harvey, Marlboro', second,	1 00
Henry Wiswell, Marlboro', 8 varieties of garden seeds,	6 00
Alvah Thompson, Swanzey, for samples of Black Sea Wheat and Java Wheat,	Diploma.

Danford Rice, Claremont, for corn,	Diploma.
Otis Whitcomb, Swanzey, for corn,	Diploma.
Solomon Mack, Gilsum, onion seed,	Diploma.
A. Taylor, Hinsdale, 12 quarts wheat,	Diploma.
Aaron Day, Gilsum, for white beans,	Diploma.
E. W. Gunn, Gilsum, for 1 bushel corn ears,	Diploma.
Ezra Wilder, Nelson, for bush beans,	Diploma.
J. Bennett, Westmoreland, one bushel wheat 1853, and one, 1854,	Diploma.
T. H. Leverett, Keene, 1 bushel seed corn,	Diploma.

VEGETABLES.

JUDGES.—J. B. Cilley, Deerfield; Samuel Garfield, Charlestown; A. Davis, Keene.

Rufus C. Sanborn, Hampton Falls, for best carrots,	$1 00
Richardson Robertson, Charlestown, for best onions,	1 00
George Rising, Keene, for best squashes,	1 00
Isaac Hubbard, Claremont, for best pumpkins,	1 00
Samuel Dinsmore, Keene, for best sweet corn,	1 00
Luke Joslyn, Stoddard, for best peck table potatoes,	1 00

FRUIT.

JUDGES.—C. E. Potter, Manchester; A. W. Haven, Portsmouth; P. M. Rossiter, Milford; Cyrus Barton, Concord.

Your committee cannot but express their surprise and gratification at the extensive display of excellent fruit, that

has come under their examination. More extensive by far as a whole, than has been presented on the occasion of any preceding Fair of this Society. Pears, peaches and plums are less abundant than on former occasions,—but apples, in their profusion, size, quality, more than make up for the deficiency in the other fruits.

There were twenty-seven competitors for the premiums of your Society in the simple article of apples, all presenting the prescribed number of *six varieties*—and others twenty, twenty-five, thirty, thirty-five, and even *forty varieties*.

Among so many competitors, and such an abundance of the finest varieties, it has been a difficult task for your committee to discriminate and decide as between the competitors and their specimens; but however faulty their decisions may be, the committee will be exonerated from censure on the score of partiality, when the fact is known, that with two exceptions alone, the competitors are entire strangers to them.

Your committee award to C. S. Fish, of Gilsum,
the first premium upon apples of $4 00

Mr. Fish presented forty varieties of apples, exceeding in number the specimens of any other competitor, and not only in number, but your committee are unanimously of the opinion that he had decidedly the best varieties. Not alone the best varieties of well-known cultivated fruit,—but he excelled in Seedlings. His Arrowsike, Twitchel's or Clover Sweeting, Ulloa and Zopher, were seedlings of Mr. Fish's own growing, and for color, size, and taste, worthy of all commendation. These varieties your committee would recommend for general cultivation, as most excellent in their kind. Mr. Fish has been engaged in the cultivation of fruit for many years, and with abundant success—as his display of specimens attest—and we think his efforts have

been of decided advantage to the fruit growers of his county, and cannot but feel safe that his example and its results will be felt in other counties—in the spread of his excellent fruit.

They would award to Lewis Taylor, of Hinsdale, for the second best six varieties of apples, the second premium of $3 00

Mr. Taylor's apples comprised twenty well-known and valuable varieties—and were very large and beautiful specimens of fruit.

They award to Albert Church, of Keene, for the third best six varieties of apples, the third premium, Transactions.

They would recommend that the Society award a Diploma to

David Clement of Hudson,
Seth Kingsbury of Roxbury,
Charles Reed of Fitzwilliam,
A. S. Kendall of Fitzwilliam,
J. Bennett of Westmoreland,
T. H. Leverett of Keene,
James Hill of Greenland,
E. Blake of Keene,
Elisha W. Gunn of Gilsum,
for exhibitions of fine fruit.

Mr. Clement had five varieties, and his "Garden Royal" and "Robinson apple," were peculiarly fine.

Mr. Bennett exhibited a Seedling that was of excellent flavor.

Mr. Reed had two Seedlings that were very fine, and worthy of extensive propagation.

They would award to Alfred W. Haven, of Portsmouth, for the best six varieties of pears, the first premium of $4 00

Mr. Haven dissented, not from the award, but from the propriety of the award, he being upon the committee; but the majority of the committee were of the opinion that his specimens justly claimed the award and insisted upon it. Mr. Haven had on exhibition fifteen varieties—all excellent in their kind, being selected from some sixty varieties, which he has in cultivation. His efforts in this kind of horticulture, are extensive; have had a decided effect upon the horticulture of Rockingham County, and the majority of the committee cannot but hope that he will give his experience such permanent shape, in future, that its beneficial results may be enjoyed by the State at large.

They would award to Horace F. Evans, of Hinsdale, for the second best six varieties of pears, the second premium of $3 00

And to C. S. Fish, of Gilsum, third best six varieties of pears, the third premium of Transactions.

They would award to H. J. French, of Meredith, for the best lot of grapes, the first premium of $1 00

To Milan Harris, of Harrisville, the second premium upon grapes, Transactions.

To Frederick Smyth, of Manchester, for display of Isabella grapes, Diploma.

They would award to Charles Reed, of Fitzwilliam, for the best lot of quinces, the first premium of $2 00

To J. S. Ide, of Hinsdale, the second premium upon quinces, Transactions.

To A. A. Parker, Fitzwilliam, the third premium upon quinces, Diploma.

They would award to Isaac Whittemore, of Manchester, for the best peck of cranberries, the first premium of $3 00

Of peaches and plums, there were very few on exhibition, and those not of such size or quality as to claim any premium, and your committee have neglected to make any award for those kinds of fruits.

Of melons, there were none on exhibition, and your committee cannot forbear suggesting in this connection, that, if the State Fair is to be holden as late as October, that peaches, plums and melons may as well be left out of the list of premium articles, as that month is too late for any respectable show in such fruits.

DAIRY.—Butter.

Judges.—H. A. Bill, Keene; H. D. Walker, Portsmouth; D. P. Wheeler, Orford.

John Lawrence, Keene, for best butter,	$6 00
Gilman White, Westmoreland, for second,	Medal.
Lucius Taft, Keene, third,	Transactions.

Premiums on butter made by girls under 20 years of age:

Isabella C. Rice, West Claremont, aged 16 years, for best butter,	1 doz. Silver Tea Spoons.
Rachael Norris, Westmoreland, aged 19, second,	1-2 doz. Silver Tea Spoons.
Charlotte P. Wyman, Keene, aged 18, third,	Medal.
Mary Ann Butterfield, Westmoreland, aged 17, fourth,	Diploma.

No statements which are sufficiently definite to be of any value, accompanying the entries. This is to be regretted, as exactness of method is the most important matter to the public, in the bestowing of the premiums.

CHEESE.

JUDGES.—Brown Nourse, Troy; S. Chase, Litchfield; P. Daggett, Westmoreland.

Gilman White, Westmoreland, for best cheese,	$6 00
Stephen Chase, Keene, second,	4 00
Charles E. Cook, Alstead, third,	Diploma.

Mr. Chase gives the following as his method of making cheese:

In making "new milk's cheese," the milk is strained into a tub from the cows, then it is left two hours or so after the rennet is added, when the curd is dipped off into a basket.

The morning's milk is managed in the same way; then the curds are united, cut up, salted and pressed two days; while pressing it is turned five or six times. After taken from the press the cheese is buttered daily.

Mr. A. Thompson of Swanzey, on exhibition, gives the following as his method:

The milk at night is strained into a brass kettle, which is placed in two pailfulls cold water in a large "farmer's boiler," where it remains until morning, when it is warmed (no cream taken off) and put into a tub and morning's milk added, then 1-2 pint of rennet to 20 lbs. curd; after which we whey off the curd, then chop it up fine, and add one tea cup full of the best ground rock salt to 20 lbs. curd, then press it in a self-acting press; the weight of the cheese generally being sufficient without additional power. The cheese remains in the press 24 hours, after which it is buttered and turned every day for three months, if not sold before that time.

Dairy, eight half-blood Durham cows.

Swanzey, Oct. 2d, 1854.

MR. WHITE'S STATEMENT.—These cheeses were made from the milk of 4 cows. The milk is made into curd as soon as milked, night and morning. It is prepared and salted, (not warmed at all) and put into the hoop each day and a cloth put on to absorb the moisture, and a light pressure. When the hoop is full it is pressed. There is nothing put into it, except pure rennet and salt.

HONEY, AND MAPLE SUGAR.

JUDGES.—B. F. Cutter, Pelham; E. N. Fuller, Portsmouth; J. Kingsbury, Surry.

HONEY.

Noah W. Hardy, Nelson, for best honey,	$3 00
Elijah Blake, Keene, second,	2 00
D. Rice, West Claremont, third,	Transactions.

SUGAR.

Granville Gilmore, Acworth, for best sugar,	$3 00
Samuel Kingsbury, Keene, second,	2 00
George W. Hammond, Gilsum, third,	Transactions.

The committee recommend the award of Diplomas to Daniel W. Bill, of Gilsum, for maple sugar, and to Amos Wendell, of Sullivan, for one gallon of maple molasses.

No statement was received concerning the method by which several specimens of *fine* maple sugar were made, especially of the final process. It bears appearance of being ground, but the committee are not aware of any ad-advantage resulting from this method of finishing. William

Kelsey, of Landaff, presented a nice specimen of 15 lbs., very white and finely ground.

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Mr. Hammond's Statement.

To James O. Adams, Esq., Secretary of the N. H. Agricultural Society.

A description of the "process of manufacture" of the maple sugar, entered by the subscriber for premium at the State Agricultural Fair at Keene, Oct. 3d, 4th, 5th and 6th, 1854:

We first endeavor to be neat,
And keep our tubs both clean and sweet
Within a house so trim and slick—
My pans for boiling set on brick,
So that no smoke or ashes can
Pollute the syrup in the pan.—
As soon as gathered, boil my sap,
And use due care that no mishap
Befall it in the operation,
Which Chemists term evaporation.
When duly boiled in pan or kettle,
I strain my syrup off to settle;
Then pour the liquor from the dregs,
And clarify with milk and eggs;
When nicely skimmed, through flannel strained,
And then we do commence again,
And boil, and watch it lest it waste,
Until 'tis finished to my taste.
Then pour in tubs and let it grain,
And lastly turn them up to drain.
But when for market we do make it,
Why then, dear sir, we have to "cake it;"
In little cakes so white and round,
The nicest in the market found.

Very respectfully yours and the
Committee's humble servant,
GEO. W. HAMMOND.

Mr. Gilmore's Statement.

My buckets are scalded clean before setting; the sap is boiled to syrup in sheet iron pans, then strained through wool flannel cloth into a tin can, stand in the same until settled, then drawn off leaving the sediment at the bottom; cleanse with milk and saleratus, then strain the second time, then boiled down to sugar, put in a tub; after standing three or four weeks the tub is inverted up and the sugar drains.

The process of making the stirred or grained sugar, is the same, except it should be done off hard, and stirred until dry in the kettle.

GRANVILLE GILMORE.

BREAD.

Judges.—A. A. Parker, Fitzwilliam; J. A. Marsh, Litchfield; Wm. Haile, Hinsdale.

The Committee on Bread report—That they found on exhibition 60 loaves of bread, one sheet of buns, and one apple-pie, and they gave the whole a full examination by all the senses applicable to the subject—sight, smell, and taste. To arrive at a satisfactory result, was a more difficult task than they had imagined; but *good bread*, emphatically called "the staff of life," was deemed of too much importance to be treated with the slightest neglect.

The committee are of opinion that meal or flour, mixed with pure water and good yeast, well kneaded, sufficiently risen and *thoroughly* baked, is the *ne plus ultra* of good bread. By this standard, they adjudicated upon the specimens before them; and after rejecting all the loaves tha

did not come up to this standard, they were very agreeably surprised to find so many remained. Out of these, the committee found great difficulty in selecting those, of each kind, upon which to award a premium. They much regretted that more premiums were not at their command, and hope that hereafter a larger number may be offered. After settling, with much investigation, which three specimens of each kind, were entitled to premiums, a still more difficult task remained, to settle which should be *first*, and which *last*. It requires more skill than the committee possess to make a distinction, where there is no perceivable difference. But a division had to be made, somewhat arbitrarily, to be sure, and the premiums awarded. If any good house-wife should believe, that her loaf of bread was equal to any that received the first premium, we beg leave to suggest to her, that the committee may be of the same opinion. But a decision had to be made, arbitrarily or otherwise, and the question settled. We beg the Society to believe that the difficulty the committee encountered is no fiction, but a reality. Finer specimens of bread, it is believed, were never before exhibited; and it is gratifying to find, that, amid the follies of the age, such a staple and indispensable article as bread, has not been neglected, but received at the hands of our fair country-women that attention, in some good measure, that its importance demands. Under these considerations and suggestions, the committee do award for the best loaf of Wheat Bread,

1st premium	to Mrs. Chas. Keyes,	$3 00
2d "	to Mrs. G. Hastings,	2 00
3d "	to Mrs. J. T. Wiswell,	Diploma.

Best loaf of Rye and Indian Bread,

1st premium	to Mrs. L. L. Robbins,	$3 00
2d "	to Mrs. D. W. Wilson,	2 00
3d "	to Mrs. Ezra Wilder,	Diploma.

To Miss Julia A. Carrol, the committee recommend a gratuity of a Diploma, for a very superior apple-pie; and to Mrs. A. Maynard, for a sheet of excellent buns, they recommend a Diploma.

Some fine specimens of "Graham bread" were exhibited, on which the committee would have been glad to award premiums, if the rules of the Society had permitted; and they suggest, that hereafter, premiums be offered for such a healthy, economical and palatable bread.

Upon the whole, the committee were much gratified with the exhibition of bread. Competition in this article can never become very extensive, as it suffers much by transportation and by age. All competitors, therefore, must reside in the vicinity of the exhibition. The good housewives, in this country, aware of this fact, have promptly come forward, and presented such fine specimens of GOOD BREAD, as to sustain their reputation at home, gratify their friends abroad, and most seriously puzzle the committee who had the high honor of inspecting and adjudicating upon their offerings. Let GOOD BREAD be the motto of the Society, now and forever.

CORPORATION MANUFACTURES.

JUDGES.—N. C. Smith, Hampstead; C. T. Buffum, Keene; James F. Dane, Nashua.

Milan Harris, of Harrisville, for best doe skin,	$6 00
Harris & Hutchinson, of Harrisville, for second best doe skin,	Medal and Diploma.
Milan Harris, of Harrisville, for best double milled cassimere,	Medal.
Henry Duncklee, of Antrim, 5 lbs. sewing silk,	Diploma.
T. Colony, of Keene, for best flannel,	Medal.

DOMESTIC MANUFACTURES.

JUDGES.—A. H. Bennett, Winchester; S. Hanson, Lincoln; Benjamin Reed, Swanzey.

The Committee on Domestic Manufactures having attended to the duty assigned them, report as follows:

C. C. P. Harris, Nelson, best rug carpet, $1, or a Diploma.
Mrs. Aaron Day, Gilsum, second, Diploma.
Mrs. Obed Hall, Stoddard, 12 yds. frocking, Transactions.
Mrs. E. H. Horton, Westminster, Vt., 1 piece of frocking, Diploma.
Mrs. Wesley Austin, Keene, hearth rug, Diploma.
Mrs. David Buss, Acworth, best hearth rug, $1 00
Mrs. S. F. Adams, Winchester, hearth rug, Transactions.
Miss Eliza Ann Rawson, Sullivan, hearth rug, Transactions.
Mrs. Larned, Gardner, Mass., hearth rug, Diploma.
Mrs. E. K. Bailey, Jaffrey, hearth rug, Transactions.
Mrs. S. H. Smith, Winchester, hearth rug, Transactions.
Mrs. J. Q. Jones, Marlow, hearth rug, Transactions.
Mrs. Laban Rice, Jaffrey, hearth rug, Diploma.
Mrs. Josiah Colony, Keene, rag carpet, Diploma.
B. Cooledge, Marlow, best gloves and mittens, $2 00
Mrs, David Buss, Acworth, second best mittens, woolen, Diploma.
Portsmouth Hosiery Co., for specimen of hose, Diploma.
Mrs. Isaiah Gould, Stoddard, best woolen stockings, $2 00
Mrs. Allen Griffin, Keene, second, Transactions.
Mrs. Laban Rice, Jaffrey, best pair of cotton stockings, $2 00
Mrs. S. F. Adams, Winchester, second, Transactions.
Mrs. Alden Ford, Orford, best linen stockings, Transactions.
Martin L. Goddard, Gilsum, best pair of worsted stockings, $2 00
James Townsend, Marlboro', best woolen yarn, 2 00
Ephraim George, Marlboro', best shirts and drawers, Diploma.

Isaac Lamson, Swanzey, 1 cotton knit spread, Book.
Mrs. Laban Rice, Jaffrey, best table cloth, $1 00
S. W. Binney, Keene, second, Diploma.
Lyman Stone, Nelson, 1 pair of woolen blankets, Diploma.
Wm. Kelsey, Landaff, best pair woolen blankets, $4 00
" " " best 10 yds. flannel, 4 00
Faulkner & Colony, Keene, mixed flannel, Diploma.
Mrs. H. W. Hurlburt, Hanover, specimens of drawing, Transactions.

NEEDLE WORK.

JUDGES.—Ira W. Russell, Winchester; George Ticknor, Claremont; Mrs. Frederick Smyth, Manchester; Miss E. C. Bailey, Keene.

Mrs. Laban Rice, Jaffrey, for best needle work, $5 00
Mrs. E. A. Dunklee, Nashua, second, 3 00
E. R. Bailey, Jaffrey, quilt, Medal.
Elisabeth L. Sears, Claremont, embroidery, Transactions.
Miss Carpenter, Keene, fancy work, Diploma.
Miss E. M. Alexander, Winchester, floss embroidery, Transactions.
Miss Martha Hager, Hinsdale, fancy work, Diploma.
Miss Marcella S. Holmes, Keene, for lamp mat, Diploma.
Dr. D. L. M. Cummings, Swanzey, for Cheneille embroidery, Medal.
Mrs. Paul Willard, Winchester, 74 years old, bed quilt. Transactions.
Mrs. H. D. Jewell, Munsonville, bed quilt, Transactions.
Universalist Society, Winchester, for bed quilt, Transactions.
H. F. Leverett, for embroidery, Diploma.

H. P. Stevens, Charlestown, for two tidies, Diploma.

The Whiton Prize.

Mrs. Samuel Kingsbury, Keene, for best darning,	$5 00
Mrs. Laban Rice, Jaffrey, second,	2 00
Miss Julia F. Blake, Keene, for best patching,	4 00
Mrs. Allen Griffin, Keene, second,	Diploma.
Miss E. C. Duxbury, Manchester, for best darning by a young girl,	2 00
Mrs. H. W. Hurlburt, Hanover, darning,	Transactions.

MILLINERY.

Judges.—G. W. M. Pitman, Bartlett; E. L. Eldridge Milford: William Hewes, Swanzey.

E. R. Gilmore, Keene, for best silk bonnet,	$6 00
E. Clark, Keene, second,	Medal.
" " " for best fancy straw,	$3 00
E. R. Gilmore, Keene, second,	Diploma.
" " " for child's hat.	Diploma.

TAILOR'S WORK.

Judges.—Same as on Millinery.

Buffum, Parker & Co., Keene, for best dress suit,	$8 00
" " " " " overcoat,	5 00
" " " " " dress coat,	5 00
" " " " " vest,	Diploma.

HATS, CAPS AND FURS.

JUDGES.—E. P. Wood, Newport; E. J. Brewer, Claremont; O. F. R. Waite, Claremont.

The display of palm hats was rather limited, considering the quantity that are made in the State, and especially in the county where the Fair was held. It is supposed that there are nearly or quite as many palm hats manufactured in the county of Cheshire as in all other counties in the State.

Mr. S. W. Buffum, of Winchester, exhibited one case of palm hats, and one dozen ditto., all of which deserved much credit.

Mr. David W. Farrar, of Troy, exhibited 35 palm hats, which were the finest specimens of the kind that we have ever had the pleasure of examining; the committee would therefore award a Medal, and recommend that it be suitably inscribed, and presented to the person who braided the hats.

We hope that the home manufacture of nice summer hats will be encouraged; a vast amount of money goes for the purchase of foreign hats for summer use.

H. Pond & Co., of Keene, made a very fine display of silk and fur hats; especially would we notice one drab beaver and one drab otter hat, for which the committee would award a Medal. H. Pond & Co. also made some show of cloth caps, and fur gloves, and one military cap, but nothing worthy of particular notice under this head.

H. Pond & Co. exhibited 14 sets of furs, worthy of much credit, and were awarded a Diploma.

BOOTS, SHOES AND LEATHER.

JUDGES.—Alvah Smith, Lempster; James Wilson, Pembroke; J. G. Alds, Claremont; John Clark, Keene.

Your committee found some difficulty in doing justice to all concerned, and at the same time, to keep within the prescribed rules.

The first premium was to be given for the best lot of boots and shoes for men's wear. Messrs. Mills, Lewis & Lane, of Milford, exhibited two cases of men's thick and thin boots of very superior quality and workmanship, but no shoes. D. Hager, of Hinsdale, exhibited a lot of boots and shoes, for which, although they would not compare with those first named, he claimed the first premium, because they were the best within the rules in the offer of premiums; your committee did not feel justified in so doing, consequently the first premium was not awarded to any one.

D. Hager, Hinsdale, for the best women's shoes,	$3 00
J. Miller & Son, Walpole, for best calf boots,	3 00
Mills, Lewis & Lane, Milford, second,	Transactions.
" " " " for best thick and kip boots,	Diploma.

Your committee were to award the first premium for the best upper leather, without specifying the kind. We would here remark, that calf-skins are an important kind of stock in which great improvements have been made of late, so as nearly, if not quite, to compete with the French manufacture. We would recommend that a premium be offered at the next Fair for the best dozen or half dozen calf-skins.

A. S. Kendall, of Fitzwilliam, exhibited a lot of leather of various kinds, among which were some beautiful specimens of patent and enamelled leather, for which he was awarded the first premium of $2; which is quite too small for the encouragement of so important a manufacture, at least, if $5, which was awarded for darning a pair of stockings, is not too large.

S. Warren, Chesterfield, for second best upper leather, Transactions.
A. Smith & Son, Lempster, for best calf-skins, Transactions.

HARNESSES.

JUDGES.—The same as on Boots and Shoes.

E. J. Bowen, of Claremont, exhibited a very fine chaise harness, combining the beauties of proportion and workmanship, for which he was awarded the first premium of $7 00

D. Wilkinson, Marlboro', for a beautiful russet carriage harness, 5 00
D. Wilkinson, Marlboro', for a side saddle and bridle, 3 00
A. S. Tilton, Keene, for best wagon harness, 3 00

FURNITURE.

JUDGES.—Hiram Ordway, Loudon; A. Folsom, Dover; F. N. Fisk, Concord.

The exhibition of furniture at the State Fair, at Keene, was very small, and no chance for competition, except in one or two cases in small articles. Mr. S. D. Osborne, the principal exhibitor, produced some fine articles, although the rain hindered him from bringing a chamber set, which would have added much to the show. Mr. Osborne appears to be an interesting man, one calculated to enlarge the Society, and from whom the Society may expect a permanent member and efficient aid.

The other articles were of small dimensions; an antique chair, two or three wrought chairs, two or three ottomans, two centre tables, with a few small articles. The show was quite too small. Where were our furniture men of the western part of the State, not to say any thing of those in the middle or eastern part? Do they think because they are not sure of the best they will not present any thing? This is not right. Let us all carry in some of our productions, the best we have, and if we do not succeed the first time, try again, and use a little more exertion, watch the move of those that do exhibit the best, and see if we cannot learn something, and thereby be enabled to do as well as our neighbors.

S. D. Osborne, Keene, 1 bed and bedstead,	Transactions.
" " " 1 sofa,	Medal.
Mrs. S. D. Osborne, Keene, bronze frame and mirror frame,	Diploma.
Miss Frances M. Colony, Keene, 1 ottoman,	Medal.
Miss Elisabeth Tilden, " "	Diploma.
Miss Maria A. Wilder, Keene, wrought chair,	Diploma.
Mrs. E. Clark, Keene, patched work chair,	Diploma.
D. Jordan, Marlow, centre table,	Diploma.
S. D. Osborne, Keene, show case,	Diploma.

SILVER WARE AND CUTLERY.

JUDGES.—Otis F. R. Waite, Claremont; H. J. French, Meredith; Samuel Gray, Portsmouth.

E. E. Bailey, Claremont, best silver ware,	$5 00
Cutlery Company, Claremont, best cutlery,	10 00
Pliny Merrill, Hinsdale, best carpenter's chisels,	Diploma.

PRINTING, BINDING, &C.

JUDGES.—Isaac Sturtevant, Keene; E. F. Buckman, Northumberland; Albin Beard, Nashua.

A. Godfrey, Keene, best variety pamphlet and job printing, $3 00
N. P. Greene, Nashua, best exhibition of binding, 3 00
B. Farley, Marlow, best writing ink, Transactions.

GLASS, EARTHEN, STONE AND MARBLE WORK.

JUDGES.—William Parker, Pembroke; Harvey Carleton, Chesterfield; B. F. Cutter, Pelham.

O. N. Russell, Pottersville, for earthen ware, Transactions.
David Wilkinson, Marlboro', for marble work, Transactions.

COOPER'S WORK, &C.

JUDGES.—J. S. James, Raymond; S. B. Chase, Keene; J. M. Glidden, Charlestown.

John Bowker, Keene, best pails, $2 00
" " " flower pots, Transactions.
Willis & Clark, Swanzey, second quality pails, Transactions.
" " " best lot tubs, 2 00
Geo. S. Phelps, Marlow, best bowls, Diploma.
Luke Baldwin, Brookline, best barrels, 3 00

COPPER AND TIN WORK.

JUDGES.—John T. Coffin, Meredith; Samuel Coffin, Concord; Wm. Earle, Claremont.

The committee appointed to examine stoves &c., having attended to the duty assigned them, report:

That the specimens of stoves presented were all of foreign manufacture, and, by the regulations of the Society, not entitled to cash premiums; but some of those presented we consider worthy of commendation, among which were a steam ware cooking stove, and a parlor stove of the Franklin pattern, with a door to close in front. The above were entered with others by Messrs. Pratt & Bosworth, of Milford.

Of the other lot, presented by Messrs. Norwood & Weeks, of Keene, the cook stove with a free-stone fire front, as a protection to the oven, a parlor cooking stove, and a farmer's portable boiler, should command attention of those wishing stoves.

Your committee would recommend that one volume of the Society's Transactions be awarded to each of the exhibitors.

Norwood & Weeks, Keene, for tin ware,			$3 00
O. F. Mack, Marlow,	"	"	Transactions.

AGRICULTURAL IMPLEMENTS AND CARRIAGES.

JUDGES.—James Hall, Greenland; S. L. Slader, Acworth; J. T. Coffin, Meredith Bridge.

The Committee on Farm Implements have given attention to the various articles exhibited, and would have been glad

to have reported premiums on more articles than they now can, as but few of them are of New Hampshire manufacture, the larger part being from those true promoters of improvements in agricultural implements, Ruggles, Nourse & Mason, and Prouty & Mears, of Boston. The various articles presented by them show the same attention to perfection of manufacture which characterizes all they have heretofore presented.

The case of forks from Van Ornum, Brady & Co., are very fine specimens, and do credit to the manufacturers.

The side hill plow, presented by J. B. Wilder, of Belfast, Maine, your committee think the best implement they have ever seen for that purpose, and would recommend an award of one volume of the Society's Transactions to him.

The improved mowing machine, by Fisk & Russell, also commended itself to us.

Tyler's butter working machine, by Hall & Holmes, of Brattleboro', Vt., we think is worthy of a volume of the Society's Transactions.

Gale & Eagle's cutters for hay and stalks, by Nourse & Co., of Boston, we consider superior articles.

We also recommend that Thomas F. Chapin receive a volume of the Society's Transactions for his improvement of plows.

C. H. Dana, West Lebanon, for horse-hoe cultivator,	$2 00
" " " " corn planter,	Transactions.
Dan'l W. Gill, Gilsum, for yoke,	Transactions.
Israel Gould, Stoddard, "	Transactions.
Richard H. Kent, Orford, plow,	Transactions.
Richard Duncan, Acworth, horse rake,	Transactions.
Smith & Chase, North Weare, hay cutter,	$2 00
N. W. Cilley, Nottingham, farm gate,	Transactions.

The two-horse sleigh, entered by Jason French, of Keene, showed a fine finish, a beauty of workmanship, which will do credit to any manufactory, and we award him $7 00

Charles Wilson, West Swanzey, road sulky, Transactions.

MACHINERY.

JUDGES.—L. D. Day, Rochester; Jehiel Wilson, Keene; J. McIntire, Lancaster.

The Committee on Machinery report as follows:

D. A. Clay & Co., Claremont, best engine lathe, $8 00

Charles Buss, Marlboro', engine lathe for clothes pin machine, Diploma.

Charles Buss, Marlboro', for drilling lathe, Transactions.

Robert T. Glenn, Claremont, machinist callipers, Diploma.

J. M. Reed, Keene, 8 screw jacks, Medal.

E. B. White, Nashua, White's universal screw chuck, Medal.

F. M. Woodbury, Groton Junction, Mass., apple-parer, Diploma.

J. A. Fay & Co., Keene, tenoning machine, sash sticking and moulding machine, Diploma.

J. A. Fay & Co., Keene, boring and mortising machine, Medal.

Joshua Jewett, Nashua, box tools, Transactions.

Gage, Porter & Co., Fisherville, for variety of excellent saws. Medal.

DENTISTRY.

JUDGES.—P. P. Woodbury, Bedford; A. W. Haven, Portsmouth; Harvey Carleton, Chesterfield; J. C. Eastman, Hampstead.

Your committee to whom was referred the examination of the dental department, report, that we regard the science of dentistry, and the great improvements in that art, as highly important to the community, and that every skilful practitioner who understands his business, well deserves the thanks and patronage of all who have occasion for such services. We have examined gold plate work exhibited by Drs. W. F. Chamberlain, of Manchester, J. W. Russell, of Winchester, and W. Ball, of Walpole — all superior work.

We regard the entire sets on gold plate, of Dr. Chamberlain, upon the whole, as superior to any thing on exhibition.

Dr. Russell exhibited fine specimens of entire sets on platina, which gave evidence of superior skill and workmanship.

We examined good specimens of block teeth by Dr. W. Ball.

We award to Dr. Chamberlain, a Diploma.
We also award to Dr. Russell, a Diploma.

DAGUERREOTYPES, PAINTINGS, DRAWINGS, FRAMES, &c.

JUDGES.—F. A. Faulkner, Keene; F. A. Brown, Manchester; A. H. Bellows, Concord.

G. W. Harris, Keene, monochromatic landscape, and colored crayon head, Diploma and Transactions.
Mrs. Elbridge Clark, Keene, 3 monochromatic drawings, Diploma.
Mrs D. N. Wright, Keene, crayon view of Lake Village, Diploma.
Miss Nancy Coffin, Rindge, 2 crayon drawings, Diploma.

Miss M. Burnap, Keene, monochromatic drawing and pellis work frame, Diploma.
Miss Eliza Adams, Keene, 4 oil paintings, 2 original, Medal.
Miss Amelia N. Hale, Stoddard, 4 water color paintings, Diploma.
Mrs. G. G. Ingersoll, Keene, pine and hemlock cone frames, Diploma.
Miss Mary Carpenter, Keene, wrought collar, Diploma.
Miss C. F. Leverett, Keene, wrought scarf and pin cushion, Diploma.
Miss Sarah D. Leverett, Keene, wrought scarf and collar, Diploma.
Albert Gregory, Portsmouth, stereoscopic daguerreotypes, Diploma.
Miss Sarah R. Colony, Keene, painted table, Diploma.
Miss E. A. Webb, Keene, pellis work frames, Diploma and Transactions.
Mrs. G. W. Harris, Keene, pellis work frames &c., Diploma.
Mrs. J. D. Colony, Keene, pellis work what-not, Diploma.
Miss Sarah E. Wright, Keene, pellis work what-not, Diploma.
Mrs. John Bowker, Keene, pellis work frame, Diploma.
Simon Strauss, Portsmouth, ornamented penmanship, Medal.

MISCELLANEOUS ARTICLES.

JUDGES.—J. B. Clarke, Manchester; J. C. Eastman, Hampstead; J. W. Emery, Portsmouth.

A. T. Wilder, Keene, for ketchup, cider and jams, Diploma and Transactions.

Isaiah Gould, Stoddard, for elderberry wine, Transactions.
H. W. Smith, Keene, for blackberry wine, Transactions.
Reed, Nelson & Co., West Swanzey, for four doors, Diploma.
Miss E. M. Alexander, Winchester, for flower specimens, Diploma.
Noah W. Hardy, Nelson, for vinegar from sap, Diploma.
Stewart Hastings, Keene, for house plants, Transactions.
Mrs. H. A. Bill, Keene, for shell work, Medal.
" " " for pellis work, Transactions.
" " " for wax work, Diploma.
Foster & Felt, Keene, for seraphine, Diploma.
Obed Dort, Keene, for orange tree and coxcomb, Transactions.
A. P. Shattuck, New London, for specimens of penmanship, Diploma.
Jones, Carpenter & Woods, Brattleboro', Vt., for melodions, Transactions.
Mrs. C. M. Harris, Harrisville, for artificial flowers, Diploma.
H. J. French, Meredith, for grape wine, Medal.
Sarah E. Maynard, Marlboro', for shell pyramid, Diploma.
A. O. Miles, Manchester, for specimen wood turning, Transactions.
Joseph Perkins, Jaffrey, for knife boxes, Transactions.
Mrs. Sarah Brown, Keene, dried flowers, Diploma.
Samuel Kingsbury, Keene, for ancient bottle, Transactions.
A. Folsom, Dover, for oil carpeting, Diploma.
Ezra Wilder, Keene, for husk mat, Transactions.
D. Rice, Claremont, for grape wine, Medal.
Mrs. John Bowker, Keene, for dried flowers, Diploma.
Mrs. Ann Richards, Keene, for fancy box, Diploma.
Sylvester Davis, Claremont, for platform bee-hive, Diploma and Transactions.

NEW INVENTIONS,

Not included under the head of Machinery.

JUDGES.—N. B. Baker, Concord; M. C. Burleigh, Somersworth; J. T. Gibbs, Hart's Location.

The committee would have given descriptions of all inventions presented for their examination, had the exhibitors complied with the requests of the committee. As it is, they present the following descriptions of different inventions:

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MAGOON'S PATENT FEED-WATER HEATER FOR LOCOMOTIVES,

By Magoon & Prince, St. Johnsbury, Vt.

It is perhaps well known, at least, among those who construct or repair locomotives, that a large per centage of the heat generated in the fire-box, is not taken up in its passage through the flues of the boiler, but, passing through the smoke-arch at the forward end of the boiler, and up through the chimney, escapes into the open air, and is lost. It is obvious, then, that, while the engine is running, the smoke-arch and chimney are heated to a high degree, receiving as they do, not only the waste heat, but the exhaust steam also, which, in the smoke-arch, mixes with the ascending column of smoke and heated air. It was to save a part of this waste heat, and, by so doing, save fuel, that the invention, exhibited to us, and known as "Magoon's Patent Feed-Water Heater, for locomotives," was designed.

A brief description will explain its construction, and mode of operation.

As usually constructed the chimney of a locomotive consists of four different parts, viz: The outer case or chim-

ney proper; the bonnet or cap of wire netting which covers the chimney; the inner smoke-pipe, and the cone.

This inner smoke-pipe is placed in the centre of the outer case or chimney, is some 14 or 15 inches in diameter and reaches from the bottom nearly to the top of said chimney; and it is through this pipe that all the smoke, heated air, and exhaust steam, must pass, before they reach the open air. Directly above the mouth of the smoke-pipe, at a distance of from 8 to 12 inches, is placed the cone (a piece of cast iron, in shape somewhat like an inverted plate, with a cone in its centre, on the under side), the object of which is, to turn the sparks down into the bottom of the chimney, and, retain them there and so prevent the setting of fires by them along the line of the road.

The "Heater" is constructed by placing around the above described smoke-pipe another cylinder, 2 inches larger in diameter, and closed at both ends, water tight, thus leaving between these two cylinders and around the ascending column of heated air, a space of one inch wide, and as long as the height of the smoke-pipe will permit. The cone is made hollow, too, by placing over and attaching to it a cap, and a communication is made between it and the space around the smoke-pipe by gas-pipe, 1 1-4 inch bore. The supply pipe for these water spaces is also 1 1-4 inch bore, and leads from the force pump, on one side of the locomotive, along the side of the boiler, through the smoke-arch and into the lower part of the first described water space.

The return pipe leads from the inside of the hollow cone or water space, No. 2, (about 1 inch above the bottom of said space) down through the smoke-pipe, smoke-arch, and along the other side of the boiler and into the tank of the tender again.

The operation will readily be understood as follows:

Water drawn from the tank of the tender, by the action

of the pump, will be forced up through the supply pipe into water space No. 1, till that is completely filled, then through the connecting pipe into water space No. 2, till it reaches the top of the return pipe, when it will return by its own weight into the tank again, thus keeping up, while the engine is running, a constant circulation of the water from the tank up through the "Heater" and back again to the tank. During this circulation the water is exposed to all the waste heat of the engine, a part of which it rapidly absorbs, giving, at all times, *hot* water in the tender; preventing the freezing of the pumps in the coldest weather, the contraction of the flues always resulting from the introduction of *cold* water into the boiler, and effecting a saving of 15 to 20 (as is alleged by the inventor) per cent. of fuel, an item of prominent importance among the expenditures of Railroad corporations.

SHARP'S BREECH LOADING AND SELF-PRIMING RIFLES—ALSO PATENT REVOLVING HAMMER PISTOLS,

By the Robbins & Lawrence Co., Windsor, Vt.

The peculiarity of these arms and the manner of using them were described to the committee as follows:

"Sharp's arms combine simplicity of construction, rapidity of firing, and extraordinary range, with perfect accuracy and unequalled safety. The barrel and moving parts are of cast steel, and so wrought and finished as to insure their excellence and durability. The arm will admit but one charge at a time, and obviates the objection to all magazine or cylinder guns. The priming magazine is charged with 50 air and water-proof pellets, ready for

use, but the arm is only primed when the hammer is at full cock.

To load—The breech is opened by moving the lever or guard forward; the cartridge is inserted and pressed forward smartly with the thumb, which fixes the ball in its seat; move the lever to its position, which closes the breech, and cuts off the rear end of the cartridge, exposing the powder in the line of fire communication; or insert the ball at the breech, force it to its seat with a rod, and charge with loose powder.

As no patch is used, the ball should be well greased with tallow, which lubricates through the barrel and prevents leading.

To prime—Cock the arm, place the thumb of the left hand on the screw head beneath the cup of the hammer and press the slide backward to a stop.

Insert the tube containing primes, in the magazine until the wooden follower lies in the slide groove; holding the follower firmly in that position with the left thumb, at the same time withdraw the tube with the right hand and carefully let down the hammer, still holding the follower in the groove until the descending hammer forces it out by carrying the slide forward to position.

When the priming magazine is charged, do not shove the magazine cover back so as to admit of the escape of the primes.

If, by long continued firing, the breech-pin becomes foul, a few drops of water, or even saliva, applied to it, and the lever moved backward and forward two or three times, will cause it to move perfectly free.

The barrel is cleaned by inserting the brush, wet or dry, at the breech, and propelling it through the bore.

The barrel has an adjusting bushing at the breech, which is fitted to the breech-pin or slide, so close as to prevent any escape.

Oil the arms, and all their parts, with the best sperm oil."

The following is an extract from the report of the Board of Ordnance Officers, U. S. Army, who are presumed to be better judges of these arms than your committee:

Sharp's Rifle and Musket.

"This is an arm loading at the breech, which is opened and closed by a vertical slide or shear cutting off the end of the cartridge. This arm has withstood all the trials the Board has considered necessary to make with it. It was fired several hundred times without cleaning, during which the movements of its machinery were not obstructed. The arm is loaded with great ease and rapidity by using a simply prepared cartridge which Mr. Sharp has arranged; and also the ordinary rifle and musket ammunition, with its percussion caps, can be used with facility.

The penetration, range and accuracy of fire from the rifle thus arranged, with the cartridge and conical ball prepared for it, were superior to that of any other breech-loading piece offered to the Board. With Maynard's primer (which, as well as the cap, may be used) this arm was fired ten times per minute, and when discharged over the water, a second charge was fired before the *ricochet* of the first had ceased.

From the observations of the use of this rifle, the Board are of opinion that it is superior to any of the other arms loading at the breech, and think it would be well to have further trials made, and to put some of them in the hands of troops to determine whether they are suitable to the military service."

The following directions were furnished for the use of the Patent Revolving Hammer Pistols:

"The pistol is loaded by unscrewing the barrels, which exposes the chambers. The tube of the flask will contain a proper charge of powder, which, with the ball, will just fill the chamber.

Screw the barrels on tightly, by inserting the wrench in the muzzle end of two barrels, and clasping the end of the barrels and wrench together.

Place the middle finger in the ring for cocking, and touch the trigger with the fore-finger.

Balls are of the size of 140 to the pound.

Caps are of the usual pistol size, and care should be taken that they are pressed on the cones tightly.

If you cock the pistol, and then do not wish to discharge it, press the thumb upon the spring-head in the end of the breech, holding the cocking-lever firmly with the middle finger, and easing the hammer down.

Do not snap off the pistol too frequently when the barrels and breech are unlatched, so that the hammer cannot strike upon the cones.

This pistol is very easily cleaned; by taking out the screw in the centre-pin at the muzzle end of the barrels, they are separated from the chamber cylinder; the chamber cylinder is also easily separated from the breech, by taking out of one of the screws in the hinge, thereby allowing the pistol to be thoroughly cleaned in a few minutes.

Careful persons will not allow the pistol to get rusty; but, if it should become so, it will be perceived that the construction of the lock work is such, that the working parts are not materially affected.

A little experience in its use will prove, that for simplicity, ease of loading and capping, rapidity of discharging, power and correctness, together with convenience in carrying, with no liability to accidental discharge, this pistol is far superior to any other yet made."

Patent Window Frames,

By Curtis Fay, Winchester, N. H.

This frame is made with a recess one inch and one-half deep on the left hand side, in which are placed eight springs and movable jams, which press sufficiently to hold the sash in any desirable position. Its advantages over all other window frames are as follows: it is always tight and yet it can be hoisted by any child that can reach high enough to give it its full height, and can be taken out by turning a screw in these movable jams, (one near the bottom, the other near the top of the bottom sash,) which leaves the sash free from any pressure whatever. The jams are hollowed out a little for the sash and the sash made to fit.

Tyler's Butter Working Churns,

By Hall & Holmes, Brattleboro', Vt.

These churns are claimed to be a valuable improvement, for the following reasons:

1. They are adapted to dairies of any size.

2. Owing to the action of the dasher upon all the cream alike, they produce more butter from a given amount of cream than any other churn—the butter all comes at the same instant, and the cream requires no putting down, as in other churns.

3. There is no machine that works butter more perfectly. The salt is thoroughly mixed, and the butter rolled into rolls, without taking it from the churn, as was proved by actual trial at the State Fair.

4. It is very simple and thorough in its construction, not liable to get out of order, and can readily be taken apart and put together again.

5. It brings butter sooner than any other churn that is

adapted to the dairy, since the cream is broken up four times at each turn of the crank.

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Door Spring, (model,)

By Titus & New, Keene.

This spring possesses three advantages, viz: simplicity, cheapness and durability. It furnishes that which has long been desired: a spring which, by its self-action would close the door of a house, without being so large as to be cumbrous and unsightly, as it is entirely out of sight when the door is shut.

Its construction admits of its being applied to any door, however heavy, and for economy and convenience, it is superior to all other similar inventions.

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Patent Fowl Feeder,

By L. W. Albee, South Charlestown, N. H.

This "Fowl Feeder" preserves the grain from filth. The fowls can feed themselves at their pleasure, and at the same time produce no waste.

The case contains a hopper for grain, with slides to regulate its descent into the feed boxes, which are arranged with doors that open at the approach of the fowls—as they step on the platform in front—and close again when they turn away.

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The committee award the following premiums:

Virgil Woodcock, Swanzey, for improvement in school house desks, Diploma and Transactions.

Curtis Fay, Winchester, patent window frames, Diploma.
Titus & New, Keene, door spring, Diploma.
Pratt & Bosworth, Milford, patent funnel collar, Diploma.
Magoon & Prince, St. Johnsbury, Vt., feed-water heater for locomotives, Diploma and Transactions.
Safety Railway Switch Company, model of patent railway switch, Diploma and Transactions.
The Robbins & Lawrence Co., Windsor, Vt., patent breech-loading and self-priming rifles, Diploma and Transactions.
The Robbins & Lawrence Co., Windsor, Vt., patent revolving pistols, Diploma and Transactions.
C. H. Dana, West Lebanon, potatoe digger, Diploma.
" " " " seed planter, Diploma.
Alvin Holman, Winchester model of bridge, Transactions.
Hall & Holmes, Brattleboro,' Vt. butter working churns. Diploma.
J. B. Wilder, Belfast, Me., side hill plough, Diploma.
Charles Buss, Marlboro', patent vise, Diploma and Transactions.
" " " pistol, Diploma.
S. W. Albee, South Charlestown, patent fowl feeder, Diploma.

October, 1854.

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Since the report on New Inventions has been made up, the Secretary has received the following account of Mr. Woodcock's patent, with the accompanying engraving.

"My claim embraces the diagonal arrangement of the desks and chairs, and possesses great and signal advantages over any other arrangement, and gives to every scholar a separate desk and chair, and the full control of his books and writing; it releases every one from any in-

terference with another, and gives all the privileges of inhaling the pure air without receiving it second handed from the one sitting near him, as by the old method of desks. So great is the saving in room, that hereafter all double desks may be entirely dispensed with, and every scholar provided with a single desk and chair. By this arrangement as many scholars can be seated at single desks as double ones, and they will not occupy the same floor room. There is also a great gain over single desks, as arranged in the common way in schools, by seating forty-eight scholars in the same space as thirty-six are commonly seated, (a gain of one-fourth, and so in proportion for a greater or less number.) The desks and chairs are arranged diagonally on the floor, so that no one scholar can see the face of another without one of the two being at right or left half face. When the school is called to procession, all can rise at once and step into files in the aisles without coming in contact with one another. Scholars are more directly in view of the teacher, and can therefore be kept in better order, which greatly diminishes the labor of the teacher.

The usual method of arranging single desks in schoolrooms, is to place them in independent rows, with an aisle between each row. This method of seating requires so large a room to seat the number of scholars required, that but few feel able to erect houses of such magnitude as is required for said arrangement, therefore they are required to use double desks. By my new arrangement, it is not necessary to increase the size of the room beyond what is required to seat with double desks, and also gives all those important advantages gained by the diagonal arrangement. The annexed engraving is a perspective view of my new arrangement—two rows of single desks are combined together with a connecting board between them—the under edge of the board is even with the under side of the desks, and neatly graduated on the top to conform to the shape of the upper surface of the desk, and to correspond to the differ-

ent heights of the desks as they are graduated for large or small scholars.

A, *A*, and *C*, *C*, are shown connected to each partition board *D*. The teacher's desk is represented at *E*; *B*, the chairs of the scholars at their desk; *a*, *a*, are the desk standards. Each scholar's desk is arranged opposite the seat space of the opposite scholar, thus completely separating them, and preventing playing and whispering, except by the agonizing method of wriggling their heads, as shown by the attempt of the two little fellows in the middle of the room. When thus arranged and combined, one end of each desk is fastened to the connecting board with wood screws, the end of one desk to one side of the board and the end of the next to the other side, alternately. In connecting them in this manner the iron standards on which the desks are mounted are much lighter than are required where they stand independently by themselves; and it is not necessary to place a standard under each end of every desk, as every other desk will be supported at the connecting end by the connecting board, and is much more convenient in sweeping, and presents fewer and smaller obstructions for the feet. If arranged without the connecting board, a standard must be placed under each end of every desk, the same as are used when desks are placed in independent rows.

The desks are made of cherry, mounted on cast iron standards, of which I have a new set of beautiful patterns. The chairs are made of hard wood and mounted on cast iron pedestals, the upper end of which is screwed to the chair seat, and the lower end screwed to the floor. The centre of the chair back extends to and connects with the lower end of the pedestal, which greatly diminishes the danger of breaking off at that part which is usually the weakest. The desk standards are also screwed to the under side of the desks and to the floor.

After the announcement of the awards, the prize animals were paraded on the trotting course, by classes. This was a new feature in the Fair, and created much interest. This was followed by trials of speed, with fast horses, in which quite a number of fleet animals contended. The successful competitor was Mr. D. Smith, of Dover, whose six years old horse went twice around the half mile track in 2.48.

This sport was followed by a foot race about the course, in which there were four contestants. The successful competitor was Edward B. Wilder, of Keene, who accomplished the task in 2.39. A purse was made up on the spot and presented to Mr. Wilder.

Speeches were made by Thomas M. Edwards, Esq., Hon. Levi Chamberlain, of Keene; Col. Glidden, of Unity; Hon. J. C. Eastman, of Hampstead, and others.

After thanks to the Marshal, and three cheers for the next meeting of the N. H. State Fair, the presiding officer declared the proceedings closed. Thus ended what has, on the whole, been as creditable and pleasant a meeting as ever the Society have had.

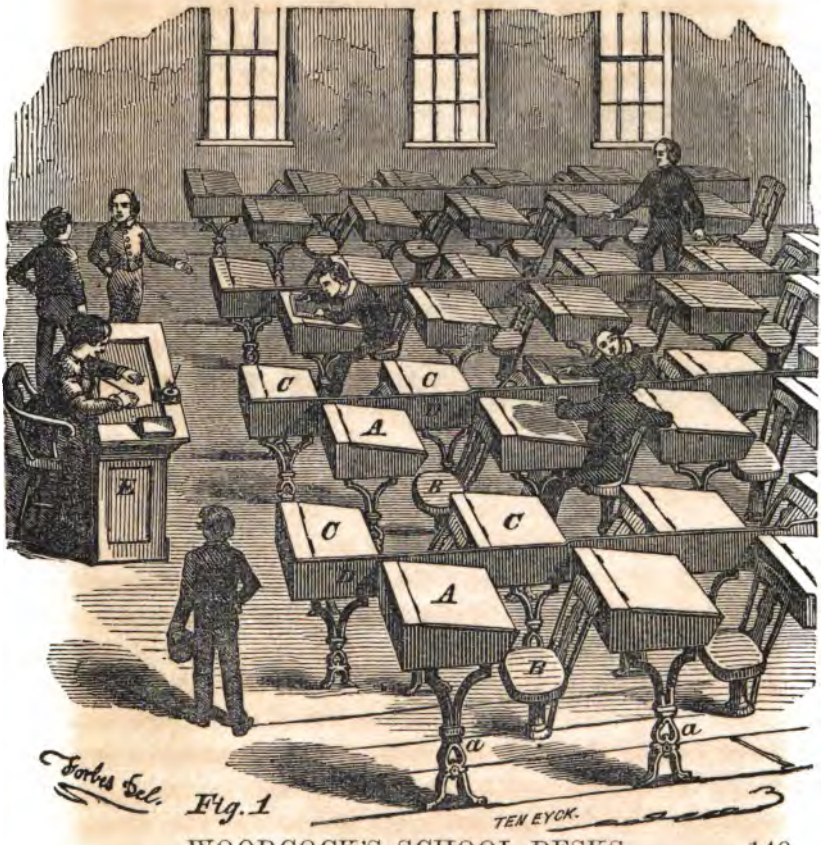


Fig. 1

WOODCOCK'S SCHOOL DESKS.

ESSAYS AND COMMUNICATIONS

PREPARED FOR THE

N. H. STATE AGRICULTURAL SOCIETY.

CHEMISTRY AND PHYSIOLOGY APPLIED TO AGRICULTURE.

BY I. H. NUTTING, M. D.

The science of chemistry has for a few years past made wonderful advancement. It has penetrated the veil which Nature has thrown around her operations, and revealed much which man in his ignorance had ascribed to supernatural agents or mysterious forces, of whose laws and operations he knew nothing. It has opened the vast treasures of the inorganic world, rendering us familiar with the changes going on in the deep recesses of the hills, and, bringing to light new substances, and new properties of those already known, has enabled man, by taking advantage of these, to revolutionize the world. The hidden properties of the metals and the acids were discovered, and the lightning became man's servant. The sunlight now paints with living truth the lineaments of the "human face divine"; the rail car thunders along its pathway; and the engines of death have a superhuman power.

But it is not alone in the inorganic world that chemistry has pushed it researches, or won its brightest laurels. Laying hold on the animal and vegetable, it has put them to the torture, and compelled them to disclose many of the before incomprehensible secrets of their existence and growth. It is not now a blind chance whether a grain of corn fall into the ground and die, or bring forth a stunted and sickly crop, or bring forth full measure to the sower that he may have bread and rejoice in the labor of his hands.

The carbon, and hydrogen, and oxygen, and nitrogen, and the mineral elements, must be furnished to the plant, or no return will gladden the heart of the laborer. But whence come these? The skillful chemist shows that the former of these is ever present in the air that bathes each plant, not indeed in the solid form it is to assume in the plant, but so combined that the oxygen can be separated and thrown off. Chemistry, aided by the microscope, has not only determined that this change goes on, but has sought out the means by which it is accomplished, and watched the process. She follows the dissolved carbon, and hydrogen, and oxygen, and nitrogen, as they soak into the soil, to be taken up by the spongioles of the roots. It explains the law by which these ascend the plant, and are converted from the crude sap into the delicate tissue of the leaf, or the unyielding trunk of the forest monarch.

Having thus succeeded in penetrating the outer crust, it even presumes to enter the vail, and claim all the mysteries of life as its own. But here it meets a repulse. Life has mysteries which chemistry cannot unfold. There is a power which claims chemistry as its servant. Chemistry may indeed digest the food, but life can alone form the compounds from it. Chemistry may explain the circulation of the fluids, but it can move them only while life is present. It is thus but a secondary force, and though it may throw much light on the phenomena of organic beings, and afford us much aid in their production, there are limits beyond which it cannot go.

So the researches of chemists in the animal kingdom have thrown much light on its phenomena. By its aid oxygen is found the essential element in all the combinations. The blood circulates, the secretions are carried on, the changes in the particles of matter take place, the nervous power is evolved, the brain acts, men in this present life think only when this motive element combines chemically with the substances of the brain. Every thought of the

living soul breaks down the combinations of the body. Yet oxygen is not thought, nor is it soul. The chemist may mingle, as he will, the oxygen and carbon, and hydrogen, and nitrogen, and sulphur, and phosphorus, and lime, and soda, and iron—all the elements of the body—yet he cannot form the living organism. The germ endowed with the vital power must be present, furnishing its conditions for these operations, and directing the work. Here, too, is a limit beyond which the chemist cannot pass.

While, then, we may hail chemistry as a great benefactor of the age, we must not claim too much for it, or trusting to that, neglect other sources of knowledge.

Chemistry, as applied to agriculture, is now a popular topic. So it was a few years ago as applied to medicine. Its discoveries had thrown so much light on medical science, that not a few were ready to lay aside all observation and study of phenomena, and trust at once to the analysis of the chemist. They were well satisfied that every abnormal change could be detected in the secretions, and the remedy at once indicated by analysis. Medical practice was thus to be a well defined course, and judgment and observation of cases were to be no longer needed. But men soon found changes would occur that could not be detected, and that patients would die.

Chemistry was at length degraded from the high post she had assumed, and, from being mistress, became servant. In this capacity she has proved an invaluable ally. Men are satisfied that medicine is not a set of rules, but an art demanding the most patient research and untiring observation of the experiments which Nature is constantly offering to view. This error did much to hinder the true progress of medicine.

Chemistry now holds the same relation to agriculture that it then did to medicine. The arts of farming and medicine bear a strong resemblance to each other. The one is the treatment of the vegetable, and the other, of the

animal; and we shall find these two kingdoms of the organic world so closely connected that no line of demarkation can be drawn between them. Essentially the same laws apply to both. The same general principles in physiology, and the same in the remedy for unhealthy action. The processes of *respiration* and *nutrition*, of secretion and reproduction, are essentially the same in both; and, in so far as chemistry applies to the one, so far does it to the other art.

The same mode of reasoning is found in farming and in medicine. The general principles of both are capable of complete demonstration, yet nothing but a careful examination of facts, and observation of the circumstances of each case, can enable us to apply these. We may have general principles in the sciences, but no fixed rules in the art. In medical practice, we are told, no two cases are alike, and this is equally true of agriculture. The character of the ground in both a chemical and mechanical view, if I may use such an expression, its position, the meteorological changes likely to affect the crop, the nature of the plant, &c., must all be considered for each crop. You may analyze your soil and find potash wanting, and apply that in abundance, yet if you neglect the other conditions, you will fail. The habits and peculiarities of each plant must be studied, just as in medicine the idiosyncrasies, as well as temperament, of the patient, must be taken into account. Without this careful observation, and without correct reasoning from it, aided by the principles of physiology, chemistry, &c., no man can become a scientific farmer. These alone can make him such. So in medicine. A man may practice pretty well in a limited round of diseases, trusting to his experience. But here he must have correct observation and reasoning. So may a farmer become skillful in his art by the same means. In either case there must be patient observation and reflection. Yet all this labor leads only to limited results. The mind longs for the principles

and a wider ground for action. Then it was that the chemical theory prevailed in medicine, and for the same reason it is popular in agriculture now. Besides, men dislike patient observation and reasoning. There is too much work in it. Hence, any scheme that promises to free from this labor will be popular. There were the uroscopists in medicine, who, by an analysis of the urine, imagined themselves able to detect any disease. It was easier to analyze this than to reason from facts carefully observed. But were they always correct, or able to detect the changes in the system? A drop of prussic acid, or a grain of strychnine, will destroy life, yet who would detect these in the fluids of the body. An unseen and unappreciable contagion sends the cholera over the land, and along our western rivers, a miasm shakes us till our bones would fall apart—yet what can chemistry do? The blight has fallen on the potato, yet chemists seek in vain for the cause.

Look at that blade of corn, pushing out from the earth, growing day by day, till the ripened grain is ready for the eater. There is something more than chemistry in this process. The vital forces have been the essential agents in these wonderful phenomena. The chemical forces have indeed been subservient to these, and equally necessary to the result, for such is the mutual dependence of all things in nature. The chemical and the vital forces are equally modes of God's action. And he alone can effect the results. We may, indeed, put matter in such relations that these forces shall be manifest, but nothing more. The laws of vitality are thus not less worthy of study than those of chemistry. Nor will patient research fail to throw light on them, though they are less readily understood than those of chemistry.

As has already been hinted, chemical analysis is by far too imperfect to detect agents which are even fatal to both animals and vegetables. Nor when we consider the small amount of some substances necessary to render a soil pro-

ductive, and the manner in which these exist in the soil, will it be a matter of wonder if they should escape the chemist in his analysis. Certainly nothing but the most skillful analysis could be expected to detect them. The amount of lime necessary for a productive soil is so small that the common tests in the hands of the farmers would not be able to detect it. This is still more true of phosphorus. In any of our old worn-out fields the latter is pretty certain to be lacking. A chemist may, therefore, with perfect safety, order an increase of this in the soil.—And so may the farmer, by the aid of a knowledge of the general principles of Vegetable Physiology and Chemistry, and the course of treatment the soil has received, proceed safely in the application of this to the soil. Nor is the opinion of the uncertainty of the analysis of soils, as usually conducted, unsupported by high authority. Practical chemists have given it as their opinion, that these are to be relied on only when corroborated by observation of the phenomena exhibited by the growing crops. But any chemical manipulation requires tact and constant practice to render it successful. If lime be present in large quantities in the soil, its effervescence with an acid will indicate it. But this amount is much above what is necessary to render the soil productive. Such a natural soil can hardly be found even where limestone is the prevailing rock. It is hardly probable that farmers can be so instructed in chemical analysis that they can determine best what each soil needs for each crop. Practical men, both farmers and chemists, reject such an idea. This claiming so much for chemistry, that it sets aside the claims and necessity of careful observation and experience, has done much to hinder the diffusion of the knowledge of agricultural chemistry among the farmers. It is not their indolence or stupidity that has prevented their attending more to this study, but the extravagant assumptions of the chemist and the *un*-practical nature of the knowledge

offered. He may not be as competent to judge of chemical principles, as the chemist, but he may know a vast deal more about practical farming, and the disturbing forces which come in to disturb theoretical calculations. A theory may be excellent, and would lead to great results, were there no forces to be taken into account but those of a chemical nature. It is this partial reasoning that has given rise to the contempt of book farming among practical men.

What then is the conclusion at which we arrive? That agricultural chemistry is a visionary, senseless thing? By no means. No branch of study is more worthy of pursuit by the farmer. But this study must be coupled with a close and practical observation of the phenomena presented by that most skillful of all chemists—Nature—in the laboratory of the growing plant. Nature has provided a series of experiments free for all to witness, and they are true ones. They are performed under the full influence of all the forces that can be brought to affect the growing crop. And these are the only perfectly reliable experiments. Those of the chemist are of value only when they illustrate these.

But it may be urged that these experiments are difficult of interpretation, and cannot be comprehended by ordinary men. It may be urged, in reply, that this study furnishes the exact mental discipline which the farmer needs to give dignity to his profession and to render his labor profitable. He has pursued a routine course, regardless of the reason of things, and of the multiplied and wonderful phenomena exhibited in every blade of grass even, in his field, till his business is regarded as drudgery, and his profession dishonorable. But he begins to awake from his lethargy, to the fact that there is abundant ground for ennobling and profitable study in his every day pursuits, and that his study will even enhance the profit of his labor. He turns to the professed chemist to do the mental part for him, and furnish precise rules that he may secure the profit, with

hardly more mental effort than before. But he who does this, to the neglect of close observation of phenomena and reflection upon them, fails to prosecute aright the most noble of all professions. Even if such a course would secure the profit, which it does not, his labor would be only drudgery, and his profession menial.

Any one who has watched the nice manipulations of the chemist, may well despair of laying down his shovel or his scythe, and conducting the same processes successfully. That practical laboring farmers, whose daily toil is needed on their farms, can be qualified to analyze the soil of their fields, so as to know what element is needed for each crop, may be regarded as out of the question. Gentlemen farmers may do this as well as it can be done, but our agricultural interests are not in the hands of such; and may they long remain in the hands of the independent, laboring yeomanry of our land! But these are they to whom the benefits of agricultural science should be afforded. They need these benefits. Nor does the permanence of our institutions depend *slightly* on their having them.

But if chemical analyses are often incorrect, if they are expensive, and can only be performed by professional chemists, how can the plain farmer reap any benefit from Agricultural Chemistry and Physiology? He can learn the constituents of the soils, and the constituents of the plants, as well as the sources from whence these are drawn. He can learn which of these are essential to the plant, and which are found only in the grain, either stored for the use of the embryo, or for the sustenance of the animal kingdom. Vegetable tissue consists wholly of carbon, hydrogen and oxygen. But the plant must have potash and lime and silica and iron, to make up its stem, and the grain must add to these nitrogen and other substances, which are not found in vegetable tissue. The value of the crop will depend on the presence of these; for, however the stalk may grow, the fruit can only be found when these are

present. And these may exist in the grain in variable quantities, and the value of it will vary accordingly. He can learn, too, the general constituents of our soils, and their relations to the geological formations around them. Dirt, or soil, being but the comminuted rocks, will, of course, contain the same elements as the rocks from which it is formed. Thus granite, mica slate and talcose slate would each furnish a soil of its own. But it does not follow that the soil lying above either of these rocks is formed from it. The ancient deluges may have swept over them, leaving soil drawn from a different rock. Here then is a need of a knowledge of Geology, so far at least, as shall acquaint him with the drift formation. He should understand the elements which the disintegrating rocks are adding to the soil, and the means of neutralizing the injurious effects of any element that may thus be thrown into it.

Knowing what elements enter into the crops, he will know what to remove each year, and what must be added to secure a succeeding crop. But how shall he determine the elements in the soil? He cannot determine at once.—No man can farm successfully who rents a farm for a year only at a time. If he could have an accurate and reliable analysis of the land, which should embrace all the influences that would affect the crop, he might perhaps do better. But this he cannot have. Still it need not take him long to determine what elements are lacking in the soil, for when he has properly performed the conditions for the growth of the crop, the plant will act the chemist for him. He may always assume a deficiency in the phosphates and the nitrogen compounds, unless the soil is very rich, when an analysis is not needed. But to know these are lacking is not enough. He must know how to furnish them. Guano contains these largely. But the results of the past year show that the conditions under which this may be profitably applied are not yet fully settled. Analysis would be of no use to him. The potato needs potash, the bean

lime, and the wheat phosphorus. Now, then, let him set these three chemists at work, and note the result. If the conditions are favorable, and potash is in the soil, the potato will find it; and so the others. These chemists will indeed use no long terms, or perplexing tables, but *small potatoes*, a little half *filled head* and *bare vines*, are not less significant language to the observing farmer. The farmer who harvests his 100 bushels of corn from an acre, may know what he has taken off, and what must be returned to secure the same crop next year. Here are chemists at work for him, never making mistakes, and only asking to be watched while they make known the secret necessary for his success. And this very effort of watching gives the true mental discipline to the farmer, and dignifies his calling. He should also know the composition of the various manures, and the effect which exposure to wind, rain, sun and light, as well as what fermentation, and the action of other ingredients, would have upon them. Many have mixed ashes with their guano, not knowing that this process disengaged the ammonia, and injured the guano greatly.—He should know that the coloring matter of the manure is not its essential element, but that, the salts may be leached out of it, and the ammonia evolved and fly away in the air, and yet the color be tolerably good. If exposed to the rain, over an open soil, the salts will of necessity sink into the earth till arrested by an impervious stratum far below his reach, or washed off into the river, and that this is constantly taking place, will be seen from the analysis of river waters. It will also be evident from the effect produced upon plants by the sand taken from just above an impervious stratum in open soils. In the same kind of soils the volatile portions will be constantly escaping into the air. He may, therefore, with profit, plow permanent manures on land with a retentive soil, or even subsoil, while if he do the same on land with an open soil and subsoil, there will be a great loss. We should judge therefrom

that, for such a soil, manures capable of being at once taken up by the plants should be applied for present use, and often repeated. To attempt to retain a stock of manure in such land would be as wise as to attempt to retain water in a sieve.

I well remember cultivating a bog meadow, when a boy. It was formed in a bow of the river which had been cut off, and was drained by a brook running with some fall into the river. The mud was perhaps 95 per cent. vegetable matter in a partially decomposed state. We had often made use of it with fine results on the sandy upland; what crops could we not raise in this clear muck! The first crop, planted after burning off the *hummucks*, with a little horse dung in the hill, turned out, on sixteen square rods, by measurement, upwards of forty bushels of handsome potatoes; or at the rate of nearly 500 bushels to the acre. The next year it was laid down with oats, which were too heavy to stand up. The grass next year was the same, but laid down. But in a few years the crops run out. Now what was the trouble? I had heard nothing of agricultural chemistry then, and knew nothing of the constituents of plants. Had we known what every farmer may know now, we should have seen that there was no silica present to give firmness to the stalks of grain and grass. The yield of potatoes was due to the potash from the burned matter. More of the same was needed to take the place of that washed off into the river. Phosphoric acid and lime were also probably lacking. Had we done for the land, what practical men soon found they must do, carted on sand, even the coarsest, we should have found our crops of grain and grass standing up to receive us. The application of the several substances, above named, would have secured a continuation of good crops. Knowing nothing of either the constituents of the crops, and of the elements of such soils, our treatment of it was, of course, unsatisfactory.

To raise crops successfully, it is not enough to know the constituents of the crops and the soil. A good judgment is not less important, and a knowledge of the circumstances under which given elements will affect the crop, is also necessary. Guano, consequently, contains the elements needed by the crops. Yet the opinion on its utility is greatly divided. Half those who used it had no benefit, some a little, and others marked benefit from it. My own experience, in a limited way, is in its favor. My next neighbor's is the same. The next two had no benefit from it. Still, our land is all essentially the same. What conditions rendered it available for us, and caused its failure with them? The chemist cannot inform me. I, as a farmer, must make my own observations, and draw my own conclusions. Plaster works admirably on some land, and fails on others. Here analysis might aid me, but observation and careful experiment will be more reliable. The treatment of fields, must be, like the treatment of a patient, on general principles applied according to the case.

Agricultural Chemistry and Physiology, while they furnish a most interesting branch of study, are of the highest practical importance to the farmer. Yet it should be understood that they can never relieve him from the necessity of careful experiments and observation upon his crops, on such soil as he may have. Nor is there any reason why this study should not be introduced into our schools, unless it is for want of competent text books and teachers. But these would be furnished if there was a demand for them. Agricultural instruction may be given, without the apparatus of a farm and endowment, which shall give an impetus to this art, and be productive of incalcuable benefit. Physiology and chemistry are common in our higher schools. Let the principles of these be applied to the art of farming, and the work is begun.

GEOLOGY AS CONNECTED WITH AGRICULTURE.

BY WILLIAM PRESCOTT, M. D.

[This paper was originally prepared at the request of the officers of the Merrimack County Agricultural Society, and read before that Society in October, 1849.

By request of the Secretary of the N. H. State Agricultural Society, it is now revised and furnished for publication in this volume.]

It has become a trite remark that knowledge is *power*. With equal propriety may it be said that knowledge is *wealth*. Knowledge is acquired by investigation and study—by persevering research. It becomes highly important, therefore, that man put forth all the means within his reach, that he place in requisition all his powers, for the acquisition of knowledge, and for its diffusion among his fellow men.

To know and understand, to a certain extent, the reason of things, and the phenomena by which he is daily surrounded, is the glorious prerogative of *man*—not of the *student* only, or the *professional* man, but of *every* man, whether farmer, mechanic, manufacturer, or the man of letters.

Notwithstanding many things have as yet eluded, and may forever elude, man's keenest scrutiny, yet it is his cheering privilege to progress in the acquisition of knowledge—to learn more and more of the material world around him—more and more of the processes both of nature and of art. And as he becomes better acquainted

with the material things of earth, on which his physical existence and his happiness depend, he will be enabled to subject them to new uses, render them instrumental of new improvements, and thus promote and augment his comfort, convenience and happiness.

So the farmer, as he learns more and more of the nature of the soil he cultivates, and becomes better acquainted with the means of improving its productiveness, will find his labor and toil better rewarded, the means of supplying his own wants increased, and his ability to contribute to the general good, augmented.

Considering the vital importance of a correct knowledge of the art and science of agriculture, upon which man depends for his daily bread, it becomes his duty to avail himself of any information and every new fact that will throw light upon the principles by which he is to be guided in his practical operations. As the richest and best soils will become exhausted by long continued culture, it is of the highest importance to the farmer that he understand in the best manner how to preserve their fertility, and by what process, and by what means he can restore worn out and exhausted lands.

The exploded idea that the farmer has nothing to learn, that he should pursue the same stereotyped course that has been trodden by his ancestors, and that he should avoid any and all scientific instruction by books or otherwise, should be scouted by all sober and reflecting minds. No industrial branch of business is more closely allied to the researches of science, and none has received, and is still receiving from its results, greater and more important benefits, than agriculture.

Agriculture is an employment at once the most natural, the most noble and independent, that can engage the attention and excite the energies of man. It brings the whole earth into subjection to him. It transforms barren and unproductive tracts into fruitful fields. It is the pa-

rent, the source from whence spring all the arts, all the commerce, and all the industrial employments that maintain the civilization of the world. It is full of the most profound physical wonders, involves an insight into the whole history of our planet, and the hidden laws that govern that most common, and yet most incomprehensible substance—matter.

Who, that is familiar with the history of agriculture, and remembers its condition half a century since, and at the present time, can hesitate to admit that its advancement has been great and rapid?

It is familiar to many, and we could wish it were to all, that very much of this success is to be attributed to the skillful application of the sciences to the art of agriculture. The sciences have lately opened to us new revelations of the hitherto hidden problems of growth, nutrition and decay in the animal and vegetable kingdom. Processes, formerly considered difficult and mysterious, are now familiar; effects, in many important instances, have been traced to their causes; and results have been obtained, by carrying out in experiment the deductions of science, which have been of the greatest benefit to the farmer and to the agricultural interest. Secrets have been laid bare that have given to the farmer a new key to wealth and to power. Why then should the farmer hesitate to grasp at every dawning of improvement, and be constantly on the alert to verify and put in practice those newly acquired facts which the light of science has discovered and spread open before him?

The time is past when the farmer should be content to reap short crops from worn out soils. It is his interest, and should be his aim, to have the earth do its utmost. To accomplish this he must have recourse to the results of scientific investigations; this alone can inform him of the composition of his soil, of the deficient ingredients, and point out to him the specific article necessary to renovate

it and render it productive. By this process agriculture is fast losing its old character of being a round of physical drudgery, and is rapidly becoming a science, full of profound interest and practical utility, meriting the patronage and fostering care of the rich as well as the poor, the man of letters, no less than of him who emphatically eats his bread by the sweat of his face.

The sciences which have contributed most liberally to the advancement of agriculture, are botany, chemistry, and geology.

The application of botany to the art of agriculture, has shown the mode by which nature effects improvement in plants and fruits while under a state of cultivation, and enables us to *imitate*, and in many instances to *improve* upon her. Chemistry and geology go hand in hand in this important enterprise—in fact, they may be said to compose two parallel tracks upon that great railroad which has been constructed and put in operation, to guide the car of science through that wide, extensive and comparatively unexplored region—*scientific cultivation.*

Chemistry has in various ways rendered essential aid to the progress of skillfully conducted agriculture. It has scrutinized and analyzed till it has rendered many things, formerly hidden and doubtful, as clear as the noon-day sun. By developing in a considerable degree the constituents of the most valuable plants, and teaching the nature and character of the soils to be cultivated, it has pointed out the specific remedies needed to insure a successful crop. It has shown the most profitable and successful methods of preparing new composts and specific manures, and the method of their application. More than all this, it has given us glimpses of the great pervading agent in all growth, nutrition, vegetable and animal organization, and promises to admit us still farther into that mysterious temple, where, in silence and in darkness, the germs of animal and vegetable life first find existence and the means

of their continuance. And it is by watching her movements closely, by testing her theories by practice, by treasuring up every valuable suggestion, and by working out her problems patiently and carefully, that the cultivator is to hope for the aid of chemistry in his future progress in agriculture.

Geology, the most modern of the sciences, which has very recently sprung into being, and which has assumed form and method within the memory of many now living, has progressed with rapid strides, and developed, as if by magic, many of the hidden secrets of our globe, the importance of which is felt by no interest more than that of agriculture, and there is none to which it contributes greater and more essential aid.

Formerly, the earth was considered a mere mass of inert matter, from which man had nothing to learn; *now* it is known to be a volume full of important readings; a chronicle in which the events of illimitable ages are recorded; pages in which new proofs of wisdom and design are clearly manifested, and by which every observer is most eloquently invited to look through nature to the Author of nature.

That part of the earth which is exposed to our notice, and which is denominated its crust or surface, bears every where the most conclusive marks of a change. Examination of the earth's surface proves that changes have taken place requiring long periods of time for their completion; changes involving the successive creation and extermination of numerous races of animals and plants; changes, each of which affected the nature of the earth in all succeeding times, which continues to affect it, and which will in all time to come—exerting a powerful influence on the social condition and happiness of our race. These changes have followed each other in regular succession, each of which effected great and important improvement in the condition of the earth's surface, until it was brought, by the last

great overthrow, to its present condition; a condition suitable for the residence of man, the creation of whom, and the present race of animals and plants, was the last and crowning act of the Creator. The earth being thus completed and prepared for the habitation of man, he was placed upon it by the Almighty, with the imperative injunction to "till the ground, and eat his bread by the sweat of his face."

To the lover and admirer of nature, the very dust on which he treads, has assumed a new value in consequence of the discoveries of geology. He sees that much of it once lived; that the flint of the mountains and the beds of chalk in which it is embedded, the red clays of the seashores, the vast deposits in many of our swamps and bogs, as well as the myriad coral isles of the vast ocean, are but the remains of those puny tribes which, although so minute as to elude our vision, have done so much to change and render habitable the face of our globe. He recognizes the great truth that life is a series of combined existences, from the lowest and simplest infusoria, up through each successive and superior race, to man, the highest in the scale of God's mysterious workmanship. Through each successive step, it may be seen that the decay of the one, has formed the step for the superior and more perfect organization of the next.

Geology also teaches that each step in the series is distinct; that, at each successive overthrow, destruction, and renovation, the previous races were destroyed, new races created, and thus successive acts of creative power were exerted, at each of which, creatures of more perfect and complicated organization were produced, as the earth became suited to their existence and necessities. And the termination as well as the beginning of many species is marked with a distinctness and an exactness which is truly wonderful, and which cannot be mistaken. We might revert to the time when this earth was an incandescent mass—

a sphere of boiling lava; to the time when our granite hills were mere bubbles upon its surface, and which, during the process of ebullition, cooled and congealed in the form in which they now exist; or to a later period, when our globe was agitated by conflicting elements. We might, also, exhibit the existing proofs of the many and terrible revolutions that have, in former ages, changed the surface of our planet, and even unfold the strange and grotesque forms of animals that then inhabited the earth; when enormous lizards or saurian reptiles lashed the foaming deep, or darted through the air in quest of prey; or to a still later period, when the huge mammoth and ponderous mastodon roamed, the undisputed monarchs of a former world, and which perished in the last great catastrophe that preceded the creation of man.

Such speculations, to the reflecting mind and to the lover of nature, are indescribably thrilling and interesting. But it is not the theoretical part of geology we are to consider; our business is with the earth as it is, and of its importance to the farmer and to the interests of agriculture.

The subject placed at the head of this essay naturally embraces the following topics, to wit: *First*, the *origin* of soils: *second*, their distribution, mixture, variety, properties and capabilities; point out the deficiencies in the mechanical composition or mixture of certain varieties, and teach the right application of such materials as will restore the equilibrium, and render the soil fertile and productive. While, *thirdly*, it is the province of chemistry to analyze and to unfold the chemical composition, both of the soil and also of the vegetable to be cultivated, together with the right application of specific and special inorganic substances as manures or food for plants. The third or last division being purely chemical, will not fall within the scope and design of this essay.

Agreeably to the foregoing arrangement, the first topic

we are to discuss, is the *origin* of soils. And here let us pause to consider what we are to understand by the term *soil.* The farmer generally confines his idea of soil to that loose pulverulent mass which composes the surface of the earth, and which generally extends but a few inches in depth. But geologists agree in considering the term soil to include the *whole* of that compound mixture, that loose friable matter which constitutes a large portion of the surface or crust of our planet. It consists of an assemblage and combination of a variety of heterogeneous substances. In short, the whole surface of the globe that is not solid rock may be denominated *soil.* In common parlance this mixture is called *earth.*

It is of various depths or thickness; being in many places of *vast* depth, while, in others, the rocks protrude and ascend far above it, forming mountains of naked rocks, of various heights. Much of this substance is very compact and hard, constituting what the English geologists call *crag*, and the Americans *hard pan.*

It will be perceived that we make use of the term *soil* in a much more extensive sense than that in which it is customary for the farmer to employ it.

The question of the origin of this heterogeneous mass, we will now proceed to consider.

From whence did this mass of soil proceed, and how happened it to be placed in the situation in which it now exists, are questions replete with thrilling interest, and should be made the subject of earnest inquiry and careful examination by every tiller of the ground.

But many do not hesitate to *cut* the *Gordian knot*, they are for taking every thing for granted that requires mental effort, and, methinks, we already anticipate the response of such who are ready to say, "why God created it when he created the world and all things else." Well, we admit that the Almighty created the *substance*, the *materials* of which it is composed, but we do not admit that He created

it and placed it in the same confused mass, in the same condition in which it now exists, at one and the same time; on the contrary, it is manifest from the geological construction of this globe, that, originally, it consisted of a uniform homogeneous mass, and that mass in an incandescent state; that, subsequently, by the process of cooling, the surface became crusted over, forming solid rock, the primitive granite; that this solid crust or frame work has since been broken up by internal convulsions, revolutions and great overthrows, accompanied by destruction of old formations and reconstruction and creation of new; that the solid rocks, thus shivered and torn asunder, and exposed for ages to the combined action of air, water, and internal heat, have undergone disintegration and decomposition, crumbling, first into fragments, and eventually into powder, constituting the materials of which the soil is composed. These materials have since been exposed to the powerful action of those resistless diluvial currents which, at some former period of the world's history, swept over its surface, and which by whirling, grinding, pulverizing and variously intermingling their materials, have facilitated the completion of the process, and rendered the compound suitable for fertilization and culture.

We contend, therefore, that soil is derived from the disintegration and decomposition of rocks, which have for ages been acted upon by agents, which, by their mechanical and chemical powers, have shivered and crumbled the solid ledges into those pulverulent matters which constitute the basis of our soils.

Intermingled with the pulverulent mass, we find boulders and fragments of rocks, pebbles and gravel, of every variety of size, and in various proportions, and distributed without order or regularity, strongly indicating that this heterogeneous mass has been thrown together by some powerful inundation that has swept over the earth's surface.

Now, to understand the relation which exists between geology and agriculture, and the manner in which the former can be made subservient to the latter, and promotive of its interest, it will be necessary to examine some of the revelations which science has made in regard to the structure and present condition of our globe.

At first sight, and to the casual observer, the crust of the globe appears a confused assemblage of rocky masses piled on each other without regularity or order. But, upon a critical examination and close inspection of the geologist, a variety of beautiful arrangements has been traced, by which science, aided by the light of modern discoveries, has been enabled to classify and arrange into systems, these apparent irregularities of nature.

Uneven and mountainous as the surface of the earth now is, it is much less so than when in its primitive state.—Then, when there was naught to be seen but a naked mass of granite, when there was no eye to see it, save the eye of Him who created it, the naked granite mountains, instead of being of the puny height of five or six miles, as some of the most elevated *now* are, must have soared to the enormous height of 100 miles, interspersed with seas equally profound, and by which, in all probability, the mountains were partially, if not wholly, covered. Now it is a fact, of which the very first principles of geology assure us, that the solids of the globe cannot for a moment be exposed to water, or to the atmosphere, without becoming liable to change, but immediately begin to wear down, and the operation proceeds with unwavering certainty.—With seas of 100 miles in depth, constantly wearing upon mountains of equal magnitude, with the high temperature that then existed, and accompanied by internal convulsions and volcanic outbursts, a system of disintegration of inconceivable magnitude must be produced; the materials of which, by being carried into the neighboring depths, and there deposited, must at length form beds of vast thick-

ness. The matters thus worn off and deposited in strata at the bottom of seas and oceans, became the components of the earliest stratified rocks, the first series of which is the *gneiss and mica slate.* The vast thickness of these beds of the primitive stratified rocks, is what attests the profoundness of the primeval oceans in which they were formed.

Prof. Pallas ascertained an unbroken series of these primary, sedimentary rocks in the peninsula of Tauris, which, after making allowances for their inclination or dip, would give a perpendicular thickness of more than 68 miles; and Mr. Hitchcock has ascertained that the Western Railroad, in passing between the towns of Westfield and Pittsfield in Massachusetts, is carried over nearly perpendicular strata of gneiss and mica slate, for at least twenty miles.

The rocks of which the present crust of the globe is chiefly composed are obviously divided into the stratified and the unstratified, but, for the advantage of science and the convenience of reference, they have been subdivided into primary, transition, secondary, tertiary, diluvium, and alluvium. Modern geologists have made a further division, but the above will be sufficient for our present purpose. In making this enumeration, we begin with the lowest or oldest rocks, and end with the surface or present soil, being the newest or last formed.

The first class, or primary, or the oldest rocks, consists of granite, gneiss, mica slate, primary limestone, talcose slate, hornblende slate, quartz rock and clay slate. These constitute the great frame-work or primitive envelope of the globe. They form the most lofty mountains, and at the same time extend downward below all the other formations to the greatest depths yet penetrated by man, and constitute every where the foundations on which the other rocks are supported. It is, therefore, very rationally supposed that they were the earliest formed in the process of creation and construction of the earth's crust; and are

hence denominated *primitive* or *primary* rocks. The principal rock in this class, and the lowest in the series is granite, and is compounded of three distinct substances, quartz, felspar and mica. It is obviously crystalline in all its parts, produced by the gradual cooling of the mass in a state of fusion. In this rock no results of secondary causes are to be found—chemical and mechanical agents alone are seen.

The primitive *stratified* rocks contain no matters which are not to be found in the primitive granite. They are the same in material, but only changed into new forms and combinations; and hence they are denominated metamorphic rocks. These rocks having been formed by the slow and quiet deposition in water of the detritus of the granite mountains, the strata, which are parallel, must have been formed in a horizontal position; but now they are found tilted upon their edges at various angles, and frequently thrown about in great confusion and wild disorder; evidently the result of great and violent convulsions from within. Sometimes these upturned strata are seen variously twisted and contorted, indicating exposure to great heat, while acted upon by some powerful mechanical force.

One of the most striking instances to be met with of the contorted condition of the strata of stratified rocks may be seen in the slate, exposed in excavating for the railroad a few rods north of the Railroad station at Brattleboro' Vermont.

The strata of gneiss on or near the summit of *Kearsarge* mountain, are also variously bent, indicating great and powerful pressure from below while in a comparatively soft or plastic state. The torn and broken condition of these rocks render them much more easily acted upon by water or atmospheric influences, by which, in their turn, *they* were worn down to furnish materials for the subsequently formed strata of the *transition* and *secondary* rocks.

These primitive sedimentary rocks, like the primitive gran-

ite, contain none of those petrified remains of animals and plants which abound so much in the secondary formation, and which tell a tale so wondrous of the past history of our globe. They simply contain mineral materials, which were derived from the primitive granite, and which appear to have been formed in seas of vast depths. The absence from these rocks of all traces of vegetable and animal existence, joined to a consideration of the intense heat which must have then prevailed, has led to the general belief that no animal or plants of any kind then existed. It is from the disintegration and decomposition of these rocks, and their deposition in water, that the strata of all the subsequent stratified rocks have been formed, in which the earliest traces of organic life are discernible, and which leads us to the next class of rocks in our course upward from the primary group, on which this class, termed the transition rocks, rest.

Here, as above stated, we enter, for the first time, in our progress upward, upon a series or group of rocks in which the remains of organic life, (low indeed in the scale, but still life,) becomes associated with the mineral or earthy constituents, of which the strata are composed. This formation is found to be composed of fragments of all the primitive rocks above described, reunited and consolidated into continuous masses, often of vast extent and immense depth. It is supposed by geologists, and generally admitted by men of science, that these rocks were formed when the primary rocks were thrown up from the bed of the primeval ocean, when the disruptions, abrasions, disintegrations, caused by such powerful and mighty movements from below, crumbled and reduced the higher parts of the primary to fragments and to powder. These shattered fragments, becoming agglutinated by their own pulverulent cement, and the organic remains of animals and plants that entered into their composition, recomposed continuous strata forming the rocks to which we allude, and

in which the first rudiments of vitality are to be found—the first dawn of organization.

The first-born of earthly creatures are here seen recorded in imperishable characters on the solid rocks. These consist of beings of the lowest organization, as sea-weed, coral, and marine shells, which are here found petrified and imbedded, and which afford a decisive and incontrovertible evidence of the formation of this group of rocks subsequent to the creation of those organized beings contained in them.

Here, on surveying the fossil structures of this long succession of strata, of which this *transition* or primordial-fossiliferous formation is composed, and which must have been formed by the slow deposition, at the bottom of an ocean, of the detritus of the more ancient rocks, mingled with the remains of animals and plants, and which have accumulated to the astonishing thickness of three miles, we are at once struck with the long lapse of time required for their deposition and consequent formation; and more especially, when we contemplate their slow derivation from the disintegrated materials of the more ancient rocks; their repeated elevations and depressions; the long periods of repose that intervened, during which hundreds of species of animals ran through their cycle of generations, and became extinct; and the continuance of this stratifying process until these thin strata had accumulated into beds of the immense thickness before stated.

The next class of rocks the geologist finds in his upward course, is that which is denominated the *Secondary formation.* These rocks lie upon and next above the transition formation, last described, and appear like deposites composed of grains which once belonged to primitive rocks. These grains and fragments are bound together by some sort of cement forming solid rocky masses. With these are interstratified many varieties of *limestone;* and throughout the whole series is found a great variety of the fossil

remains of animals and plants. This class of rocks has been subdivided by geologists into several groups, the lowest of which is the coal series or the carboniferous formation. In this formation lie imbedded those immense masses of carboniferous limestone, so prolific in animal remains, and also, those inexhaustible beds of coal which are contributing so much to the comfort, prosperity and happiness of man. These coal strata, which, in places, exist of a thickness of many thousand feet, consist entirely of the spoils of a series of successive vegetable worlds. But in the rank and luxuriant wildernesses which are here accumulated and compressed, are to be found no *existing species;* not even a *variety* is found that has not become extinct.—On these rocks are impressed no speaking footprints; these primeval forests were never traversed by prowling beasts of prey, nor is there a solitary indication that they ever echoed to the voice of birds.

The groups next above the carboniferous, in a regular ascending series, are *first,* the *lower sandstone; second, magnesian limestone; third, sandstone; fourth,* the *oolitic,* and *fifth,* the *chalk formations.* These formations are all crowded with petrified animal remains. Here we first find the remains of those gigantic lizards or saurian reptiles which have excited so much wonder and curiosity in the scientific world, some of which must have been nearly 100 feet in length, and of the height of an elephant. The bones and teeth of the shark and other fishes, and reptiles abound here, and fossil shells are scattered with great profusion throughout most of the groups in this extensive class of rocks. These groups with their strata, sometimes lie horizontally, but are usually more or less elevated, so as to dip at considerable, but various angles.

If we take a retrograde step and plant ourselves once more upon the primary rocks, it will be recollected that on leaving these we ascend into the transition and secondary series. It can scarcely be said that we have passed the

boundary by which these latter are separated from the former, when we begin to find that new conditions have taken place in the earth's crust, and new materials have entered into the composition of the rocks. Here we find the rocks to be formed, in a *great measure*, of materials derived from the substance of those which preceded; but they contain also another substance which was not before to be found. Here, for the first time, we find *lime* mingled with the other materials, and even beds of limestone, some of which are of vast thickness, now arrest the attention of the geologist. This limestone is a carbonate of lime, a compound, of which one of the ingredients, (carbonic acid gas,) possesses the elementary substance called *carbon*, which is also another new substance to be met with in these formations, and which did not exist as a distinct substance anterior to their deposition. The inquiry naturally arises, from whence were these substances, (lime and carbonic acid,) derived? These questions are the more important and interesting from the fact that these substances enter into the composition of all living beings, and the carbon constitutes one of the main ingredients in all organized substances.

There is reason to believe that carbon, in its primeval state, existed in the form of carbonic acid gas; and in that state was not only confined in the interior of the earth and absorbed by the water of the ocean, but diffused through the atmosphere in much greater abundance than at the present time. We know that it is taken in by plants and transformed into carbon. It is also known that certain classes of animals, (as the marine polypes,) are capable of appropriating it in connection with lime, (in the form of carbonate of lime,) from the waters of the ocean, where it is held in solution, and deposited in masses, (coral reefs,) equal in extent to many strata of sedimentary deposits. The primitive and subsequent history of carbonic acid gas, is worthy of much attention. Chemists estimate the quan-

tity of this gas locked up in every cubic yard of limestone, at 16,000 cubic feet. The quantity confined in the immense beds of coal, of which it forms from 64 to 75 per cent., is altogether beyond our conception.

A large portion of this gas must have been, at one time, diffused in the atmosphere. This quantity of carbonic acid in the atmosphere would render it incapable of supporting life in *land animals.* But it should be recollected that such an atmosphere would be *congenial* to a luxuriant growth of land vegetables, such as took place during the carboniferous period, when grew and flourished the materials that now form those vast beds of coals, of which carbon is a principal ingredient and which was subsequently destroyed, deposited and fossilized as it now exists.

But during this period, neither the rocks nor the coal, although containing, enstamped upon their strata, in indelible characters, the marks of vegetable and marine animal remains, unfold to us any record of the cotemporaneous existence of *land animals.*

This superabundance of carbonic acid was not only congenial to the support of a luxurious vegetation, but by uniting with the lime held in solution by the water of the ocean, caused it to be precipitated to the bottom, forming beds of lime stone, during the gneiss and mica slate period, but which is more extensively manifested in the formation of those immense limestone strata, which are found on leaving the *primary*, and entering on the *transition* and *secondary* formations.

And here it is proper that we should recur to the question of the origin of lime. For when we contemplate the important relation this substance holds to the science of agriculture, it is apparent that an inquiry into its origin, natural history, and properties as a fertilizer, becomes highly important and interesting to the farmer, and by him should be closely studied and well understood.

The question of the origin of lime has given rise to

much speculation; for some contend that, as lime does not exist as an *integral* part of the primitive granite, it must have been the result of a special creation, subsequent to the existence of the granite. But it is now generally admitted that, although it does not form an *integral* part of *granite*, yet it does exist as a *constituent* of one of the integral parts of which granite is composed, viz., *feldspar*. For it is to be kept in view that granite is not a mechanical deposit, but a mass, crystalline in structure, being made up principally of crystals, mutually adjusted by salient and re-entering angles, or confusedly aggregated; presenting occasional cavities, lined by more perfect crystals. Every thing in relation to the formation of granite implies a previous state of corpuscular mobility, the particles having liberty of motion. The only powers equal to the effect produced, are heat and electricity, aided by water and the saline, alkaline, acid, and other soluble chemical agents. These we find exist abundantly in the rocks, and they or their elements were therefore originally provided in the grand store-house of created materials.

The accumulation of geological evidences leaves no doubt of the prevalence of fire in the interior of our planet. It is extremely probable then, that heat may have wrought those wonders in our earth which demand extensive fluidity —a fluidity by fire, rather than by water. Fire and galvanic electricity have this vast advantage over any *fluid* solvent, namely: that they can render any substances fluid without the addition of more matter to that which is to be made fluid; the materials themselves becoming, in a sense, the source of the heat needed to melt them, and it is without doubt true that this agent may be sufficient to render the entire planet fluid. Those internal fires still exist. This internal heat is an inherent and ever active principle, the full effects of which we have not the space here to discuss, even if we had the ability.

What qualities may we not suppose the primeval oceans

to possess, at the profound depths to which they reached, where their pressure must have been so vast, and where the heat may also have been active and of long continuance?

Water, under such circumstances, must evidently be a fluid of very peculiar properties. It must contain all the chemical agents not only that are soluble in it, but also that are soluble in a compound fluid, consisting of water and of other agents still more active. The acids would be solvents for the alkalies, the metallic oxides, and most of the earths; the alkalies would be solvents for alumina and silica; and the alkalies are *largely*, and the alkaline earths, as lime, &c., are *considerably* soluble in water.

Thus both mechanical and chemical laws conspire to produce solution and fusion on the greatest scale, and with the greatest energy. By fusion and softening by fire, by solution and softening by water, and its dissolved chemical agents, we may suppose chemical depositions to have proceeded contemporaneously or in succession; confusedly, as in granite, or in layers, as in gneiss and mica slate; while the embedded minerals of the primary rock, the garnets, the staurolites, the tourmalines, the beryls, and others, whose elements were present, crystallized by their affinities, producing the beautiful crystalline solids, that adorn the early formations of the globe.

But the lime is still held in solution, which in time unites with the carbonic acid that abounds, both in the water and in the atmosphere, and, which, in turn, is deposited, forming materials for the polype, from which to manufacture and construct those vast coral reefs which abound, both in the ancient and modern oceans.

The materials and pabulum being now furnished suitable for the habitation, food and continuance of the races of those inferior animal organizations, we find them here placed to propagate their species, and act their part in preparing the crust of the globe for higher and more perfect organizations.

Water and fire and pressure, and all the great chemical agents, may thus have conspired, in accordance with physical laws, in effecting the arrangement of the crust of the globe, among which the separation and deposition of lime is not the least.

Violent movements were the natural result of this state of things. Igneous agency, the parent of earthquakes, acting beneath the rocks already formed, and beneath the incumbent ocean, would, of course, produce fractures, dislocations and distortions, tortuous flexions, injections of veins and dykes, heavings, subsidence and elevation of strata, and innumerable irregularities. The imponderable agents, heat, light, electricity, magnetism, and other forms of attraction, would be inconceivably active; steam, vapors and gases would be suddenly evolved in vast quantities, and with explosive force; and the recently oxidated crust of the earth would be torn with violence. It appears therefore evident, that although the materials of our planet were created by almighty power, they were evidently left to the operation of physical laws, which laws also affected more or less, the fate of the various races of plants and animals that were successively called into existence.

There is no reason to believe that any part of the earth's crust is now in the condition in which it was originally made; every portion has been wrought over and brought into new forms, and these changes have arisen from the action of those physical laws which the Creator established, and which are as truly His work, as the materials upon which they operate.

The hypothesis of the connection of the beds of limestone strata, with the commencement of organic life upon our planet, is supported by the facts, that in those beds we find the first remains of organized beings. And what were those beings? They were merely the unpretending forms of zoophytes and polypes, together with a small sprinkling of mollusks, or shell fish, all of them creatures of the sea.

They were organized beings, lowest in the scale in the order of creation. But still they were constantly and unremittingly fulfilling their destiny, by multiplying, enlarging, dying, depositing, and in various ways contributing to the formation of the earlier fossiliferous, or palæozoic strata, until they accumulated to the thickness of more than one thousand feet.

These being subsequently overwhelmed by some great convulsion and destroyed, other creatures of a higher and a more perfect organization were created, which served to augment the succeeding formations of many thousands of feet in thickness. These, in their turn, also perished and became extinct, to be succeeded by new creations of beings, of still higher, and of more perfect organizations. Thus, alternate destructions and new creations succeeded each other, until the fossiliferous, or palæozoic strata, composed of limestone, then sandstone, shale, and, finally, the graywacke, and the coal series, in regular succession, became so accumulated that the bed of the then existing seas was filled to the depth of from five to ten miles in thickness.

We are constrained to acknowledge, in the words of Prof. Rogers, that, "geology grows more interesting as we penetrate into the deeper secrets of the past; as we leave the obvious and commonplace phenomena, and reach the recondite and remote, in the midst of which, as in the moral and intellectual recesses of the human constitution, would seem to lie the only true and actual indices of the great forces which sway events. It is this very power to reconstruct the past, which confers on geology its most distinctive feature, and has placed it in so eminent a rank among the sciences."

"I question if many minds, even among those devoted to geological research, are impressed with the wonderful extent to which this science is likely in future ages to carry the restoration of antiquity. I question if we are at all

aware how *completely* the whole history of all departed time lies indelibly recorded, with the amplest minuteness of detail, in the successive sediments of the globe; how effectually, in other words, every period of time *has written its own history*, carefully preserving every created form and every trace of action."

"Each broad stratum was once the sustaining surface of its region, and supported all that the earth then possessed of its teeming generations, and received into its bosom, in some form, either perfect or mutilated, every living or organized thing. While the waters above it were the cradle, and theatre of a multitude of races, *it* was the universal tomb, receiving them all into its soft bosom in *every stage* of their life, and thus recording the minutest particulars of their individual biography."

The next division, in the ascending series, is the *tertiary*, which is supposed to have been deposited since the chalk formation, which is the last, and, consequently, the newest, of the secondary group. The strata comprehended under this division consist of beds of clay, marl, sand, and pudding-stone.

This formation abounds with a vast quantity of vegetable and animal remains, such as crocodiles, crabs, lobsters, fishes, and a vast number of marine and fresh-water mollusks, the exuviæ or shells of which are so well preserved as to have the appearance of recent shells. The tertiary is remarkable for containing the bones of *mammiferous animals*, as perfect in their organization as any of the existing species of land animals; but most of them belong to genera or species that are extinct. This formation also contains the remains of marine animals, of some of which, the genera are entirely unknown.

The next formation in regular order is the *Diluvial* or *Drift*, which is generally considered as having been formed by a deluge. It is composed of clay, sand and gravel of different degrees of comminution, intermingled with boul-

ders and fragments of rocks, and the whole mixed together in just the manner that violent currents of water would do it. This sand, gravel and soil is not always derived from the rocks beneath it, but from those at the distance of several miles, and, in this country, usually from ledges which lie in a northerly direction. In some situations these have evidently been transported from a vast distance; for frequently no rocks similar to the fragments occur within hundreds of miles of the place where they are deposited. They indicate the action of powerful torrents and inundations which have swept over the face of our continent.

There is still another group or stratified deposite, which is the result of causes now in action, and which materially modifies the surface of the earth; this is called *Alluvium.* Alluvium is generally understood to mean those depositions, made by rivers, of rich friable earth; such as are our meadows and intervale lands on all our large, and many of our small rivers and streams.

Thus have we taken a cursory view of all the various deposites and formations that have taken place since the primitive formation of our planet. Such are a few of the facts which the researches of modern geology have disclosed. Let us now consider what are the conclusions which have been deduced from them.

1st. One of the grand conclusions to which geologists have arrived is, that the *materials of which our globe is composed are of very high antiquity,* and were brought into existence long before the creation of Adam. The exact period or length of time which these materials may have existed previous to the introduction of man, or any approximation to it, no geologist has yet undertaken to determine; but they indicate a lapse of time, in comparison with which, many thousands, yea, millions of years sink into a trifling period.

2d. Another conclusion, which has been deduced from the above state of facts, is, that during the changes which

the globe has undergone, since its original production, *several destructions and subsequent new creations of animals and plants have taken place* at different distinct and very distant epochs. In other words, that whole groups have been swept at once from existence by some powerful catastrophe, and their places supplied by other races, called into existence by the creative energy of the Almighty.—The records of geology seem to testify that such was the condition of the globe in those early periods, as to temperature and other circumstances, that our present race of animals could not then have existed.

3d. A third conclusion is, that the *successive changes, to which our globe has been subjected, have been improvements in its condition as a habitable world;* that there has been a correspondent advance toward perfection in the natures of the animals and plants which have from time to time been placed upon its surface; and that *the Deity, during this long period of successive changes, was gradually filling up this world for the ultimate residence of moral and intellectual beings.* For it appears quite certain that the race of man could not have inhabited this globe in any of the past periods of its duration, prior to that era in which he was placed upon it. It would further appear that the Deity did not think proper to prepare a suitable habitation for man by a *miracle;* but by the agency of those physical laws which he had impressed upon the elementary principles of the material universe.

Again, this earth being evidently intended by the Creator for the abode and support of man and other animals, and to furnish those vegetable productions which are necessary for their subsistence, He has given it that exact degree of consistency which is requisite for these purposes.

Were it much harder than it now is, it would be incapable of cultivation and vegetables could not be produced from its surface. Were it softer, it would be insufficient

to support us, and we should sink at every step. The exact adjustment of the solid parts of our globe to the nature and necessities of the beings which inhabit it, is therefore, an evidence of Divine wisdom and beneficence.

The diversity of surface which it every where presents, in the mountains and valleys, hills and plains, with which it is variegated, indicate the same benevolent contrivance and design. If the earth were divested of its mountains and hills, and its surface every where uniformly smooth, there would be no rivers, springs, or fountains of water; the vegetable tribes would droop and languish; man and other animals would be deprived of what is necessary for their existence and comfort; the sea itself would become a stagnant marsh, or overflow the land; and the whole surface of nature in our terrestrial sphere would present a barren waste, an unvaried scene of dull uniformity. Those picturesque and sublime scenes which fire the imagination of the poet, and which render mountainous districts so pleasing to the philosophic traveller, would be completely withdrawn; and all around, when compared with such diversified landscapes, would appear as fatiguing to the eyes as the vast solitudes of the Arabian deserts. But in consequence of the admirable distribution of hills and mountains over the surface of our globe, many useful and ornamental effects are produced. Their lofty summits are destined by Providence to arrest the vapors which float in the regions of the air, and cause them to be distilled in the form of rain; they are the original sources of springs and rivers, which water and fertilize the earth; they form immense magazines in which are deposited stones, metals, and minerals, which are of so essential service in the arts that promote the comfort of human life; they serve for the production of a vast variety of herbs and trees, which administer so essentially to the wants and necessities of our race; they form thousands of sublime and beautiful landscapes, and afford from their summits the most delightful

prospects of the plains below; in a word, they adorn and embellish the face of nature. What is more beautiful to behold than mountains covered with forests, hills clothed with verdure, spacious plains adorned with vineyards, orchards, and waving grain, interspersed with naked rocks, abrupt precipices, extended vales, deep dells, meandering rivers and streams, roaring cataracts, brooks and rills, lakes and gulfs, bays and promontories, seas and oceans, caverns and grottoes? These form a variety which is at once beautiful and majestic.

It is computed that about 7-8 of the whole habitable globe, is overlaid with secondary and fossiliferous strata, that is, that about 7-8 of the present dry land has, at some former and very remote period, constituted the beds of oceans long since dried up, or the waters of which have, by the force of gravity and the upheaval of the present continents, been forced into the basins they now occupy.

To this circumstance are we indebted for the superior fertility and productiveness of the secondary and tertiary formations over those of the primary; for the celebrity of the "great west," for its superiority, as an agricultural district, over New England.

Almost the whole of the territory of the United States, which is embraced between Lake Champlain and the Hudson river on the east, and the base of the Rocky mountains on the west, and from the great lakes to the Gulf of Mexico, once constituted the bed of a vast sea, a mighty ocean, of 2000 miles in diameter, in which deposite succeeded deposite, and formation supervened upon formation, from the transition blue limestone of Ohio and Kentucky, (upon which stands the city of Cincinnati), up through the numerous and different series of the secondary to the top of the coal beds, and the tertiary of the Southern Atlantic Coast. Prof. H. D. Rogers, of Pennsylvania, in speaking of this vast basin, remarks that "the sediments of that enormous sea, which, filling once the whole interior of our

continent, has its history, despite of all catastrophes, beautifully recorded in the vast sheets of matter, which from beyond the lakes to Alabama, and from the Atlantic slope to the far Missouri, tell of its depths and changes, its earthquakes, its intervals of long repose, and the structure and mode of life of its inhabitants. Throughout this great mass of strata, whose aggregate thickness exceeds, in some districts, thirty thousand feet (nearly 5 1-2 miles), made up of an extraordinary number of distinct formations, each characterized by peculiar organic remains and composition, and marking a series of events and a vast lapse of time, we behold one uninterrupted succession of deposites, closely linked by an equally unbroken sequence of animal and vegetable remains. We are, therefore, constrained to view the whole as constituting a single system, the entire record of one immense continuous period, the collected gatherings of one prodigious sea."

I have been thus particular in describing the formation of these limestone and fossiliferous deposites, and their subsequent elevation, forming dry land, as it is evident that the whole constitutes a series of events, designed by the Creator to prepare the earth for the habitation of man.—Possessing the materials of a first rate fertile soil, this section yields abundant supplies for the support of man and beast, thereby contributing liberally to the comfort and happiness of the human race.

Although, to the farmer of this State, or of New England even, a knowledge of the structure, composition, and agricultural importance of this vast and extensive palæozoic deposite, may seem of little or no consequence, yet he cannot but see, upon reflection, that all are, more or less, interested in it, and more especially when he takes into consideration, that it is from thence that a very large portion, even of the New England population, is supplied with bread. Its importance, in a *national* point of view, is be-

yond human calculation to conceive. It is a district, which may, in truth, be denominated the granary of the world.

OF THE VARIETIES, PROPERTIES AND CAPABILITIES OF SOILS, AND THEIR DISTRIBUTION. We have before stated that the mineral part of all soils originated from the decay and decomposition of rocks, hence, it is apparent that there must be a great *variety of soils*. The most simple division of soils is into the sandy, clayey, loamy, and calcareous, variously combined with vegetable and animal substances. But a more scientific and a more correct division is into Alluvium, Diluvium, and Tertiary soil, Secondary, Sandstone soil, Graywacke soil, Argillaceous or Clay-Slate soil, Limestone soil, Mica Slate soil, Talcose Slate soil, Gneiss soil, Granite soil, Sienite soil, Porphyry soil, and Greenstone soil.

The alluvial, diluvial, mica slate, gneiss, granite, and sienite soils, comprise all the important varieties found in this State, while the fertility of the west and south is owing to vast deposites of limestone with the animal and vegetable remains imbedded in them.

With common *alluvial soils*—the result of deposition from overflowing rivers and streams, it is presumed every intelligent man is familiar. They are, of course, formed of the comminuted silt of every kind of rock over which the stream passes. These soils, probably, owe their value, chiefly, to the perfect manner in which the detritus flowing from every kind of rock and every variety of soil becomes mixed and commingled together, and to the fine state to which their component parts are reduced. Freshets bring down this comminuted matter, and the overflowing streams spread it widely over the inundated meadows and intervales, where the fine particles are deposited, which greatly enriches the soil. This operation being repeated annually, the intervales are as often top-dressed with these fertilizing substances.

All the most fertile parts of the globe were formed by alluvial depositions. Alluvial agency appears to have been the means employed in the economy of nature to prepare the world for the residence of social and civilized man.

The most ancient cities of which we have any authentic record, Babylon, Nineveh, and Thebes, were founded in the midst of alluvial soils, deposited by the Euphrates, the the Tigris, and the Nile; indeed it does not appear unreasonable to believe, that the formation of soils, for the support of vegetable and animal life, is the final end to which all terrestrial changes to which we have alluded ultimately refer. Hence, also, we may infer, that those grand revolutions of the globe, by which new continents are elevated from the deep, are parts of the same series, extending through ages of indefinite duration, and connecting all the successive phenomena of the material universe.

Of diluvial soil and its importance in agriculture, I shall have occasion to speak more at length under the head of *distribution of soils.*

Granite and gneiss being composed of the same ingredients, viz: quartz, felspar and mica, the soils resulting from them cannot materially differ; these soils, when unmixed with others of a more fertile quality, are the poorest and most unproductive of any in the State. They generally produce a loose sandy soil.

The mica slate soils are of a far superior quality to the last mentioned variety; they are less siliceous or sandy, more impregnated with alkaline ingredients, are much warmer and more retentive of moisture.

Dr. Jackson observes, that "in crossing the State of New Hampshire, from the Connecticut River to Portsmouth, near the southern part of the State, the traveller will pass over soil formed from the detritus of granite, gneiss and mica slate, and cannot fail to notice their difference in fertility, the mica slate soil being by far superior to the others."

Sienite differs from granite in being nearly or quite destitute of *quartz* and *mica*, and in taking *hornblende* into its composition. By containing more felspar than granite, and, consequently, more potash and soda, and the hornblende furnishing magnesia, the soil resulting from its decomposition is deemed to be more favorable to cultivation than that derived from granite.

The Suncook mountains, in Gilford, being composed of this rock, the presumption is that the diluvial current has swept the soil derived from these mountains, southerly into Alton and other towns in that direction, and given character to the agriculture, and to the fertility of the soil in that section of the State.

Soils being derived from the decay and decomposition of rocks, we should expect that the soil of every place would be of the same composition, and, consequently, of a like character as the underlying rock of such a place. But upon examination this is not found to be uniformly, or even *generally*, the case. In this State, or in New England generally, this state of things very *rarely* exists. But, on the contrary, it appears that powerful currents of water or some other equally powerful disturbing force, have swept over this continent, carrying with them, huge boulders, loose stones, gravel and soil in their impetuous course.

That this has been done by some powerful, overwhelming force not now in operation, is so clear that there seems no room for further doubt on the subject. This force, or current, whether produced by water, or by glaciers, (as some contend,) has been denominated the *diluvial current*, and the substances removed and scattered with such astonishing profusion, have received the appellation of *diluvium*.

Pebbles, boulders, or masses of rock, since the geological structure of the country has been investigated, can be readily traced to their original beds, no matter where found; and the course in which they have moved since

their first breaking up, is also the course of the action to which their removal is owing. Throughout the whole of the North American continent, from Nova Scotia to the Rocky Mountains, this action has been from the north to the south, with occasional slight deflections, owing to local causes. This is proved by the boulders, which are not only found invariably to the south of the places from which they were derived, but are larger and more numerous near their original location, than farther from it.

In every part of New Hampshire, Vermont, Maine, Rhode-Island, and Massachusetts, the scratched rocks and transported materials, indicate the northern origin of the drift. The whole of the vast transition formation, which extends from the Little Falls of the Mohawk river, in New York, to the Rocky Mountains, embracing the valley of the great lakes, the states of Michigan, Wisconsin, Iowa, the Minnesota Territory, the northern parts of Ohio, Indiana, Illinois and Missouri, is covered with boulders from the primitive rocks to the north of the lakes in Canada. "Some of these boulders," says Mr. Lawrence, "will weigh twenty tons; others thirty, fifty, and, perhaps, one hundred tons, and yet they have been transported not less than four hundred miles, with an immense quantity of smaller materials of the same sort, of all sizes, down to the fineness of sand. Their rounded forms and smooth surfaces strongly indicate a great amount of attrition, and that it was of long continuance. And yet they appear to have been conveyed in nearly straight lines, and in a horizontal direction."

The intimate intermixture and commingling of the different soils by the diluvial current, attended as it must have been by commotions the most appalling, could not fail of greatly improving the quality of the soil, and rendering it much more fertile than it otherwise would have been. There is no conceivable way in which the thorough mixture of the earths, so requisite to fertility, could have been accomplished so effectually as by the breaking up, and grind-

ing down, the rocky masses, and depositing the disintegrated substance in the form of diluvium. On these previous processes of nature, the whole tillage of the soil is suspended; and without them there could have been no successful agriculture.

This gigantic operation, therefore, has produced a powerful influence on the agricultural character of diluvial districts, and may be regarded as a wise and merciful dispensation of Providence, by which He designed to remove and duly commingle the soils from various rocks, so as to render the earth more uniformly fertile, by a mixture of various ingredients, which is known to produce favorable results.

As this was the last geological change—the last great overthrow which took place previous to the creation of man, it may be regarded as the crowning act of the Deity in fitting and preparing this earth for the residence and enjoyment of the human race, where we now find it, the last created, the most intelligent, and the most largely endowed resident.

A knowledge of the nature and composition of the soil he cultivates, is of vital importance to every farmer. That loose friable matter, called soil, is, as we have said, a mixture of a variety of heterogeneous substances. The constituent parts of this mixture are the earths *silica, alumina, lime,* and sometimes *magnesia;* portions of *iron,* and other elementary substances are also found in it, but these latter are always in smaller proportions than the earths. Besides these simple substances, fertile land contains an exceedingly compound matter, which, on account of the pulverulent form, has been called *mould, vegetable mould,* &c. More recently this substance has received the technical appellation of *humus.* This substance is composed of decayed and decomposed vegetable and animal matter, and is a very important and essential ingredient in all fertile soils.

An acquaintance with the individual earths and their properties teaches the agriculturist how to derive the greatest possible advantage from those powers which Nature has placed at his disposal, in the land which he possesses. It is this knowledge which will prove a sure guide to that method of improving and enriching his land, which is afforded him by the power of extracting various kinds of earths from the substrata, and spreading them upon the surface, whenever a *deficiency* of such variety of earths exists.

The earths are compound bodies, composed of a metallic base, united with oxygen; thus, silica is composed of 52 parts of a metallic base called *silicium*, and 48 of oxygen; alumina, of 53 parts of *aluminum*, and 47 of oxygen; and the other earths are similarly compounded. Thus, it will be seen that oxygen constitutes nearly one-half of the ponderable matter of the globe. It has also been estimated that the crust of the globe contains 45 per cent. of silica; 20 per cent. of alumina; 15 per cent. of carbonate of lime; 3 per cent. of the oxide of iron. Some of the unstratified rocks, as compact felspar, contain from 10 to 14 per cent. of potassa; while some of the basalts contain 6 per cent of soda. The other compounds are diffused more or less extensively, and though in small proportions, contribute essentially to the quantities of the earths, and their formation into soils.

Silica and *alumina* are the most abundant of all the earths, and their properties are the best defined. Next to them, *lime* is most abundant, and exhibits the most marked characteristics; but it resembles the alkalies more than either of the former. *Magnesia* now forms a connecting link between the insoluble earths and the alkalies.

Silica derives its name from *silex* or *flint*, which, as well as *quartz*, is almost entirely composed of it. It is, also, the principal ingredient in all the precious stones, with the exception of the diamond, and occurs in nature more

abundantly than any of the other earths; the enormous mountain masses of granite, porphyry, gneiss, &c., together with the vast oceans of sand in deserts and in plains, being mainly composed of it.

Silica, when pure, is of a white color, (as are all the earths,) without taste or smell, and will not unite with any of the acids, excepting the fluoric.

Alumina, which is never found in nature in its pure state, is mostly contained in the compound mass called *potter's clay*. Clay, into the composition of which, alumina always enters and imparts to it its peculiar plastic character, exists, in a greater or less degree, in every soil, and is also found in extensive strata beneath the surface of the earth. Clay is a compound of silica and alumina *chemically combined;* and not merely *mixed* or mingled together.

Alumina is of great importance to the agriculturist. As a constituent part of clay, it always enters into the composition of vegetable mould. A perfect *acquaintance* with it is also essential to the agriculturist, in order to enable him duly to appeciate the influence of clay upon his fields, and the improvement or deterioration of soil which it occasions. Clay, likewise, deserves attention on account of its utility in the manufacture of bricks, tiles, and pottery. All these considerations should induce the farmer attentively to study, first, the properties of pure alumina; and, secondly, those of clay.

Lime, also, is a very important constituent in all fertile soils; for, although some soils are fertile which contain but a small proportion of this earth, yet a soil entirely destitute of it will be comparatively unproductive; and as it exists as a silicate in nearly all the rocks, we may expect it in all soils. And this universal diffusion of it is a presumptive argument in favor of its importance, if not of its necessity, for the production of healthy vegetation.

From numerous experiments that have been made, lime is found to increase the fertility of land, whether applied

as *quicklime*, or as marl, or ground limestone, which are carbonates; or as gypsum, which is a sulphate; or as pulverized bones, which are phosphate of lime. After a few years, it becomes necessary to add another quantity. Hence, it is to be inferred, that the *lime* in the soil is gradually used up by entering into the composition of the plants growing upon it. Where a sufficient quantity of lime already exists in the soil, as is sometimes the case, the application of an *additional* quantity, will be of no advantage to the succeeding crop. The occasional failures and disappointments of farmers in not perceiving that benefit resulting from the application of lime which they *thought* they had reason to expect, is no doubt owing to this circumstance. Lime should be applied to land in form of a compost, made of swamp muck, barn-yard manure, &c.

A due mixture of these earths, in proper proportions, united to a certain proportion of animal or vegetable matter, is essential to a healthy and vigorous vegetation. A soil consisting of one kind of earth alone, is barren—no matter of which of the earths it may be composed, whether silex, alumina, lime or gypsum. The result is the same.

Pure animal or vegetable matter is also barren; plants will not flourish on the manure heap that is destitute of any of the primitive earths. But proper combinations or mixtures of three earths, always produce fertility, provided the *pabulum* or food of the plant be present also.

It is not absolutely necessary that these different ingredients should be combined in precisely the same proportions, in order to insure fertility; for we find by analysis, that different farms in this State, containing very different proportions of the earths, &c., as ascertained by Dr. Jackson, were but little different in their fertilizing properties, and productiveness. According to the analysis of Dr. Jackson, of the soil of a large number of farms, the proportion of each ingredient, (taking the highest and lowest,) ranged as follows: Silex and insoluble silicates, from 76

to 91 per cent.; alumina, from 3 to 5 per cent.; lime and salts of lime, from 1-10, to 4 per cent.; oxide of iron, from 3 3-10 to 7 3-10 per cent.; vegetable matter, from 3 7-10 to 9 3-10 per cent.

We perceive by this that the soils of this State contain no less than from 80 to 90 per cent. of silica, the earth of flint and quartz, while no one of the other earths constitutes 10 per cent. We perceive, also, that, although lime appears to be necessary to a healthy and vigorous growth of plants, yet soils containing not more than one tenth of one per cent., are sometimes productive; yet there may be other combinations existing in such soils, which supply the place of lime in producing fertility. This can be tested by the application of chemistry.

But I am admonished that it is time to pause. I close, not because my subject is exhausted, but because I have exceeded my just limits.

INSECTS INJURIOUS TO VEGETATION.

BY F. B. EATON.

It will be seen that the subject, above presented by the State Agricultural Society, for an essay, embraces a very wide field, and one not likely to be well treated in the limits of a single readable article. The insects, already enumerated as peculiar to this latitude, reach the number of 2300—1600 of which have been honored with a specific description. Many of them are included in the class of innocents. Many are varying individuals of the same general species, and are to be destroyed by the same class of remedies. Still, with the strictest classification and the utmost reduction, the depredators will not be conquered without many hard fought battles. I have thought best to select from the numerous insect foes of man, and to suggest some remedies for such as most infest the apple, pear, and plum, and the vegetable vines of the garden.

The insects most destructive to the apple tree, are, caterpillars, canker-worms, bark lice, and borers. The ravages of the insect last named, in some localities, are absolutely frightful, and large orchards, by reason of neglect, or want of knowledge on the subject, have presented the appearance of deadly blight. The species most common and pernicious is that named *clisiocampa*, from its living in a camp or tent of its own construction, to which in order to distinguish it from those of similar habits, Dr. Harris has added *Americana*, or American tent caterpillar or lackey. It is produced by a moth of a reddish brown color. Its

wings expand an inch and a quarter or half and sometimes more. They appear in the month of July, flying about and entering houses by night. At this time their eggs are deposited, in preference, on the wild cherry, as any one may see, who has ever noticed these trees in midsummer. They, however, accommodate themselves to circumstances, and are content with a fine orchard of apple trees. In the winter and early spring, while the trees are bare, the eggs may be found and removed with a blunt edged scraping knife. This should be carefully done, and the lower limbs of the trees thoroughly cleared of moss and rough bark which may conceal them, as a still earlier method, small bonfires are strongly recommended in various parts of the orchard in July, when thousands of the moths will insist on burning themselves to death. After all these precautions there will still escape enough to work much injury. As soon as their shining tents are pitched, it behooves the farmer to be on the alert. Your caterpillar is a gentleman bred, with all his Bedouin habits and does not leave his room until nine in the morning. For their removal, affix a sponge, or a stiff brush, or short mop of rags on a suitable pole—dip in a strong solution of brine, soap suds, lime, or whale oil soap, or sulphur mixed with lard, which will destroy the insects coming in contact, or they can be brought down by the brush and killed with the foot. Fire produced by lighting a ball of list dipped in turpentine or fluid has also been used with good effect; caution is, however, requisite lest young trees be injured. For this latter method, a tin lamp, with large wick, to be filled with spirit or fluid, may be obtained at little expense. After all remedies which may be devised, they will prove practically useless without early and diligent application. If no care has been taken to scrape and clear the trees of eggs and cocoons, the number of tents or nests, will often times be too numerous to be overcome. In connection with this, let the earth be moved from the roots and as far as the branches extend,

which is to be replaced by fresh earth; this will disturb the insects in their haunts, and, if done early in the spring, may do much good. Never drive away the birds, for in insect killing they are the farmers greatest aid. The toad also, bad as has been his reputation, is verily a most honest fellow, worth his weight in gold. A moderate number of toads in garden or orchard destroy more insects from the grounds than the labor of one man.

The canker-worm makes its appearance after the first hard frost in October, and is found in greater or less abundance, according to the severity of the weather afterwards. The general time of rising is March and early spring. The male is a small grey moth with ashen colored wings, accompanied by a wingless female with oval body, ashen above and grey beneath. They make their way to the nearest tree, deposit their eggs in rows containing from seventy to a hundred each, and cover them with water-proof varnish. When the heat of the sun brings the little destroyer forth, it marches for the choicest leaves which are stripped of their tenderest portion. With increase of the insect's size, ability and appetite, it takes more, until the skeleton only of the leaves remains. At maturity they are about an inch in length, ashen colored on the back with a pale yellow stripe on each side. They quit the trees at about a month old, and may be seen slowly crawling down the trunk, or, more commonly, letting themselves to the ground by a thread nature has provided. In four and twenty hours they burrow in the soft ground, assume the chrysalid form, and are ready for new transformations.

Nothing shows so well the formidable nature of this evil, as the number and variety of remedies which have been tried without avail for its extinction. This insect seldom penetrates the ground to the depth of more than two inches, and, if the soil be turned up in October, many of them will perish from exposure. A coating of air-slacked lime, or salt, if the tree is of a nature to withstand it, will be of service,

or the earth may be entirely changed for new under the tree, which is the best plan. Bind a strip of canvass 8 or 10 inches wide about the trunk near the ground, and cover with tar which will effectually prevent moths from ascending; it must be renewed as often as it becomes hard.—Melted rubber from old shoes is still better as it never hardens. Collars of tin, in shape like an inverted milk pan without bottom, have been tried. Sometimes the under side of the tin is covered with tar. Boards may be fitted on in a similar way. It will be also productive of benefit to throw strong soap suds on the tree and through the branches. A tin tube of any desired capacity, may be had at a tin shop and made into a syringe for the purpose.—The farmer needs as many eyes as Argus, for, while lackey and canker worm assail his foliage, sappers and miners are vigorously at work below, the worst of which ugly beetles are termed, speaking entomologically, *Saperda bivitata*, two-striped or brown and white striped saperda. They wear overcoats of a brown cast, longitudinally striped after the prevailing fashion, and are from 1-2 to 3-4 inch long. Early in June these amiable bugs contract matrimonial alliances, deposit their eggs on the apple trees, and raise a large family of hungry children. The world may have bores, but these are borer. Every brat carries a revolver and bowie knife before he is weaned. Every grub is hatched with a pod-auger in his head. No sooner does the little pest smell day-light, than he begins to dig, and though he has not a leg to stand upon, yet carries his point by power of jaw. Up he goes straight into the bark and solid wood, sweeping out his saw-dust day by day, until at last wearied out by such infernal bores, the stoutest tree gives up the ghost.

Another branch of this distinguished family of grubs devotes its attention more to the peach tree, and a third, still humbler in his aspirations, bores into and goes with or rather against the currant. Other trees are not free from

this pest, and, from the oak to the locust, none so lofty as to escape his attack. The peach, the currant, quince and apple trees, having been domesticated, appeal to man for protection. This is most effectually given, first, by carefully removing all dirt from the roots as far as possible, at an early time in spring and destroying all the fellows who have commenced their approaches by parallels or in zigzags. Then, with a wire, kill the rascals in the tree, plug up the holes with soft wood, and cover with clay, wind a strip of sheathing paper or cloth with the edge below the soil, and plaster over with clay mortar, fill around with a mixture of loam, air-slacked lime and ashes. It cannot be too well remembered that the beetle should be diligently sought out and slain previous to all this. The infested trees may be scraped and washed with a mixture of strong suds, with equal parts of clay and lime to bring to the consistency of white-wash; the tree should be washed over as far as the limbs will admit. The addition of a little brine to this will be a further guard against insects and their eggs. It is quite possible, that, having been at all this trouble, the farmer thinks to rest himself a moment from his labors, but, alas, to use the idea of Hood "his limbs are lousy," and a sore affliction it will be to the young apple trees if these close clinging parasitical acquaintances be not scratched off. They will be found clinging in minute oval scales on every limb. The best time to remove them is just after a rain when they are softened and easily removed with a blunt scraping knife, a stiff brush, or a piece of sand paper. After thoroughly removing them, wash the tree in the preparation as above. Your louse, as Parson Evans has it, is a "very familiar beast," and pastures in wooly droves on the under side of rose bush leaves as well as on many vegetables. If the plant will permit, dip its branches in strong suds for a half a minute, otherwise wash them off with a bit of rag, or syringe. Soap suds and tobacco tea, a solution of washing soda, or of whale oil soap, will overcome them if persevered in.

When the farmer has planted, hoed and weeded with care the squash, and beholds its fair round hurrying up to greet the morn, he, belike, dreams of a plentiful harvest, when, lo! *coreus tristis*, literally a *sad bug*, begins coolly to pack the leaf into his insatiate stomach. In shape like a flat iron, in color like tobacco juice, in effluvia indescribable, the squash bug is a sore annoyance in the garden. Their eggs may be found about the last of June and first of July, under the vine leaves. At first they herd in small groups, but soon separate, each in search of his fortune. Every bug carries the war into Africa, and makes the enemy's country support him. Capt. Dalgetty never looked after his provision with a keener eye. The fairest vines soon wither, and look as if desolated by fire, under their poisonous touch. If, indeed, any thing be so lucky as to escape the attention of this agreeable guest, it is often cut clean off and laid prostrate, by that brown ashen grub, called the cut-worm. Then, there is a gay gentleman, in yellow, with stripes, if not stars, who thinks the world owes him a living, and a living he will have.

The best remedy for all such flying insects as infest vines in the early stages of their existence, is to make a set of frames, twelve or fourteen inches square, and four inches deep, to be covered with coarse muslin, which can be had at about twelve and a half cents per yard. Cover the plants with them during those hours when bugs are abroad, and remove them at morning and night if desirable. By the time that the plants are too large to be covered by the frames, they will be beyond the reach of small insects. The squash bug, however, with the dirty coat, who carries in his head a convex and concave eye, and thus enchants himself with distant view, or makes a critical inspection of the grounds of his delight by a nearer squint, *he* does not give up the field so easily. If, therefore, they have not been prevented from depositing their eggs about the vines at first, they must be diligently sought and removed. They

are flattened in shape, and deposited two or three at a time, on the under side of the leaf, and can be readily scraped off.

Among the enemies of the pear tree is a small jumping louse, of the genus *psylla*. They infest the leaves and buds at an early season, and if not looked after, will shortly cause the death of a young tree. The leaves over which they travel have a rusty brown appearance, and they are such gluttons that the sap which they extract in such quantities, exudes from their bodies at all points. Soap suds and sulphur, or solution of whale oil soap, either applied with a brush or syringe, will remove them. The pear tree is subject to a disease which affects the limbs with blight, so that the sap ceases to pass, the foliage withers, and the end affected dies; other parts of the tree escape. The investigations of Dr. Harris and others, have determined the cause to be a minute insect, called the *blight beetle*. This little imp is one tenth of an inch long, of the color of Scotch high dried snuff, its legs shaded off to the hue of a rusty bucket-hoop, with a half a dozen rasps and a fish hook on each shank, and is placed by Mr. Harris, appropriately in the genus *tomicus*. This tomicus, or his mate, is supposed to deposit a minute egg at the base of some bud, the larva of which, as soon as he comes out, goes in for a time—the limb dies above where he entered. The only remedy yet devised is to watch the tree carefully, and, on the appearance of blight, cut off and burn the limb, before the insect has time to complete his transformation.

The tomicus and his allies having made a good thing of it, probably induced the slug or saw-fly to try his hand at the pear tree. He wears a professional suit of black, as becomes his surgical disposition—dark breeches and yellow silk stockings on his fore legs, with a dull black pair of pants, and a fashionable clay colored stripe across each knee of the hind legs, the wings are a compound of rain-

bows and cigar smoke; they are not over one-fifth of an inch in length. This insect carries a minute and highly finished saw, on one side of which is also a rasp. An incision is therewith made in the under side of the leaf, and a single egg deposited in a place. In about a fortnight the young slug worms come forth, generally, through the months of June and July; they come to maturity in about three weeks or more, and the largest are nearly half an inch long, resembling young tadpoles. Ashes or quicklime scattered on the tree through a sieve, or the solution of whale oil soap is to be used as a remedy. No time should be lost in applying it, for the effect of these insects is highly pernicious to the tree; the leaves assuming a rusty slimy appearance, and the whole tree languishing for want of sap to sustain the drafts made upon it. In some parts of the country the slugs have been found in such numbers, as to almost poison the air with their presence. Among all these enemies of a vegetable diet, none, as yet, have proved so formidable, or so hard to overcome as the curculio, sometimes called, from the crescent shaped puncture the creature's snout inflicts on the plum, the Grand Turk. A little black, dirty, weazen-faced varlet, is this same Turk; who, although he has been pickled in lime, stifled with ammonia, smoked with tobacco, thoroughly white-washed, swallowed by pigs and chickens, and, in short, if we except, perhaps, the unsavory weapons of the Crimea, has been assailed with every species of engine in the hands of man, yet brings down his game at every shot, and flourishes as dry, ugly and ravenous as ever.

After reading with some care the remarks of many writers, and noting the results of many experiments, it seems that the use of lime and sulphur, in the form of white-wash, has been most effectual. Let a handfull of the flour of sulphur be mixed with enough quicklime to make a gallon of white-wash, or in that proportion, throw it over the trees before and about the time when the curculio begins its ravages.

It will be seen that this essay makes no pretence to fullness, and that the vast subject is but just approached. The writer has only aimed to group in convenient form, some remedies worthy of trial, a part having stood the test of experiment, and others commended by those worthy of confidence, which, if not all successful, will at least be plain, and attended with little cost.

WOOD AND TIMBER LAND.

BY LEVI BARTLETT, ESQ.

The Secretary of the N. H. Agricultural Society has issued a circular, containing a series of important agricultural queries. Those respecting the "amount of woodland, and in what ratio it is diminishing" in the several towns in our State, are questions of grave import to the people and the future interest of New Hampshire.

Where our lumber, for building, mechanical and manufacturing purposes, for fences and for fuel, is to be obtained, when a few more years are passed by, is an interesting question, and one that cannot be easily answered.

Since the completion of the various railroads in different sections of New England, great and sweeping havoc has been made, and is now making, upon nearly all the lines of these roads, upon the wood and timber lands. It is now some over four years since the railroad passing through this town was completed. The building of the road has greatly enhanced the price of wood, and furnished a ready market for any quantity, that can be delivered at the several depots; and this seems to have created a perfect mania for "plying the woodman's axe" to every thing in the shape of a tree. Ten, twenty, forty, and eighty-acre lots of standing trees are eagerly bought up on speculation, and speedily the growth of centuries is prostrated over large tracts. The venerable oaks and pines, that were good sized trees ere Miles Standish and his toil-worn associates first stepped upon Plymouth beach, are now swept off as with the "besom of destruction." Many of the noble trees are used

for "keel and mast" of first class ships, while the smaller ones go for ship and building timber, boards, wood, &c.

In most instances, where the entire growth is removed, the land is burned over for a crop of grain. Other tracts are left to rear a new growth of trees, for the use of those that will succeed us. And could our noble timber trees, and the growth of our wood-lots, be annually replaced, as are our corn and grain crops, we could look upon this wholesale prostration of our forests with less painful feelings than we now do; but it makes one sad, to think how many long years must pass, before the seedling tree of the coming season shall equal in size some of these "monarchs of the wood," that have just measured their length upon this winter's snow. "Let us pause," says Miss Cooper, in her "*Rural Hours*," "to count the days, the months, the years; let us number the generations that must come and go—the centuries that must roll onwards, ere the seed of this year's cones shall produce a wood like that just prostrated. The stout arm so ready to raise the axe to-day, must grow weak with age, it must drop into the grave; its bone and sinew must crumble into dust long before other trees, tall and great as those," shall again occupy the same spot.

But this wholesale sweeping of the heavy forests, is not confined to any one section or State. It has been calculated that 60,000 acres of pine woods are cut, every year, in the State of New York alone. At that rate, it is calculated that the year 1870 will look upon the last pine that rears its head within the limits of that State. By their State Reports, for 1835, it is estimated that the value of the products of the forests, lumber, wood, staves, &c., carried to tide-water, by the Erie canal, amounted to four and three quarters millions of dollars. Probably, since that time, the yearly amount has been greatly increased.

The lumber, wood and bark business, and the ravages of fire, are fast sweeping away the noble forests of Maine.

A similar fate is in progress with our western pineries. According to Dr. Owen's estimate, in 1850, there were forty-five million feet of pine lumber sawed, on the waters which discharge into Green Bay. Some of the steam mills, having a "muly" saw, can turn out, with clear logs of good size, 12,000 feet to a saw, in twenty-four hours. There are water-mills in Maine that average more than six thousand.

The lumber manufactured on Wisconsin, Black, Chippeway, and the St. Croix rivers, and their tributaries, in 1847, amounted to thirty-six and a half million feet of boards, sixty millions of shingles, 95,000 feet of square timber, nine million of laths, seventeen thousand logs. Most of this lumber found its way to the St. Louis market. The steamboat, War-Eagle, towed out of lake St. Croix, at one time, a raft of logs and sawed lumber, which covered, by measurement, eleven acres.

According to the calculation made in the pine regions of New York, and the New England States, of the quantity of lumber which one acre of ground will produce, *five thousand* acres of land must annually be denuded of its timber, to furnish the lumber sent into market from the Chippewa land district. The immense immigration into the vast and fertile regions of the west, since 1847, the year these last statistics were collected, must have given an impetus to the lumbering business, almost beyond the limits of human conception. "The pine trees, from which this lumber, laths, and shingles, are made, are nearly all taken from the public lands." This fact, undoubtedly, causes more "haste than good speed," in sweeping the pineries of the far west from the public domain.

In France, the wood and timber of individual land-holders is under the control of government inspectors, who permit the proprietor to cut off their wood only at stated periods, and under certain restrictions.

So in Germany; since the year 1818, the wood-lots are under the care of forest directors, appointed by govern-

ment. Previous to that time, the woods were managed by each proprietor, as he thought best. But it was clearly seen, that under such management, the country would be destitute of wood and timber, in course of a century or two. At the commencement of the system, the people thought the act a most oppressive one; but some thirty-five years experience has proved the wisdom of the measure, and the people would be unwilling to return to the old management.

In this free country, every man has a right to sit undisturbed beneath his own "vine and fig-tree"; or he may cut them down if he pleases; and so with his forests. In these times, hewers of wood are an unsparing race; and the evils arising from the recklessness and destruction of our wood and timber, will surely be visited with a yengeance on our children, here in the bleak and cold north, far beyond the third and fourth generation, in the future scarcity and high price of timber, lumber, wood, &c.

This "devil take the hindmost policy," (as our friend, Fred. Holbrook, terms it,) is altogether too selfish. If "posterity has done nothing for us," we have something to do for them; it is for us to guard, as much as possible, against the time when wood for fuel shall be sold here, as it is in the cities and many other parts of France, by the *pound and ounce.*

Such, said the late Mr. Colman, is the value of wood there, that "many large proprietors think they cannot make a better provision for their children, than by planting forests, or preserving and cherishing such as they already have." And well will it be for the future interests of New England, when hundreds of thousands of acres of her bleak hill-tops, and their sloping sides; her worn-out fields and sandy plains, are planted out with the various kinds of forest trees, adapted to the different soils and locations. But, as that time may be far in the future, it is an imperious duty devolving upon us, to adopt and carry

into effect the best methods of "preserving and cherishing" such as we already have.

The most economical method of managing wood-lots is still a mooted question; whether it is best to select out only the full grown and decaying trees—leaving the young and thrifty standing—or to make a clean sweep of the whole, has not been positively settled, and, perhaps, as is the fact in many other rural matters, no one rule will apply in all cases.

We have alluded to the laws of France and Germany, which place the control of the forests of individual owners, under the care of government. In the former country, wood and charcoal are the principal fuel used. To supply the wants of the people, there are immense forests, some of them being portions of the national domains. The forests of Fontainbleau and Chamboid contain about 55,000 acres. There are other forests of great extent, many of them the property of individual proprietors. The trees are regularly and gradually cut off for fuel and timber; the ground replanted, or trees are suffered to grow from the stumps, or from seedlings that may spring up from the soil. The law permits the owners to cut off their wood only once in eighteen years, and this under the direction of a government inspector, *who requires it should be cut clean;* and that only such trees should be left as may be valuable for ship timber or for other purposes, which the government claims a right to take for its own uses, at an equitable price. Says Mr. Colman, "under these excellent arrangements the supply of fuel is constantly kept good, and the price of wood has scarcely varied for a quarter of a century."

Much of the land in this section of the country that has recently had, and is now having, its growth of wood removed, is of poor quality, rocky, and steep hill sides, or low swampy lands. If the fire, cattle and sheep, are kept from the denuded lands, and the forest is allowed to re-

sume its original claims, there will speedily spring up an abundance of seedlings and sprouts, from the seeds, stumps and roots in the ground, and in most cases the growth of trees will pay, eventually, better interest than any series of crops that could be grown upon them. But with too many, the quicker returns to be derived from a crop of burnt-land rye, outweighs the sure, but more distant, avails derivable from the future growth of wood and timber. The growth of trees, under favorable circumstances, is much greater than many seem to be aware of. In January, 1844, we cut the entire wood from an acre of rather wet land; the growth was mostly hard wood, of various kinds. Cattle and fire have been kept from the land, and there is now a thick 'growth of trees, from twenty-five to thirty-five feet in height, and a large portion of them from four to six inches in diameter one foot from the ground. We think, however, it will be more profitable (by gradually thinning out) to let the best trees stand till they are thirty or more years old, than to cut off the growth at eighteen years, as practiced in France.

In Germany, the management of wood and timber lands is under the direction of educated and competent government agents. The course of study which young men must pursue to fit them for the post of forest directors, is as long and difficult as that of medicine. The planting of seeds, propagation, transplanting, trimming; how much wood can be profitably cut in one year, and how soon tracts will be cut away, and how long forests may be advantageously permitted to stand in particular places, &c.,—are all under the most intelligent direction.

In making new plantations there, from seeds, broadcast sowing, rather than in drills, is found to be the better method. At proper periods, the weaker and poorer ones are removed, leaving the best and straightest to grow; always careful, however, *to keep the ground thoroughly shaded.*

Many farmers object to thinning out a growth, be it ever so densely set with young trees. Their doctrine is—nature will perform this process, better than man can. But, says an able writer, "to cultivate a wood plantation successfully, requires the same degree of care and attention in thinning out, as an onion, carrot or beet bed. If the trees are left to struggle with each other for the mastery, the vanquished will die; while the victors will suffer severely from the effects of the struggle."

Our own experience in the management of a growth of young wood, verifies the truth of the above statement. Twenty-five years ago we came into possession of several acres of pine plain land, thickly covered with a growth of white, yellow, and Norway pines. The trees were then about twenty-five years from the seed. On two acres we cut out more than half the number of trees, they being the smaller ones—the wood cut out more than twice paying the expense of cutting and hauling. Soon after this we sold the land, since which nothing has been done to it. A few days since, in company with the present owner, we examined the whole lot, and it was our opinion that, acre for acre, the wood and timber on that portion thinned out, is worth 33 per cent. more, than on that part left to thin itself. We sold the land for ten dollars per acre; it is now worth one hundred.

The lower limbs of the trees bordering on cleared land should not be removed, as they serve to break the force of winds, and prevent the blowing away of the leaves and snow. In thinning a plantation of trees, they should be left thick enough to thoroughly shade the ground, thereby preventing small trees and grass from springing up.

It is estimated that nearly one hundred thousand dollars worth of wood and timber land has been purchased by wood dealers in this town within the past four years, all of which has been and will be cut off. A just regard for the interests of those that may succeed us, points out clear-

ly the course that should be pursued in the future disposition of most of the lands from whence our forest growth is removed. Cherishing our wood-lots, not blasting them, should henceforth be our policy.

Warner, N. H., Jan. 17, 1855.

THE CULTIVATION AND PRESERVATION OF FORESTS.

BY B. F. CUTTER, ESQ.

The first thing to be taken into consideration in the cultivation of forests is the means by which they are propogated, whether from seed or by transplanting young trees. I propose first to notice the propagation from the seed.

The seeds of all the oaks, hickories, butternut, black walnut, beech, chestnut, bass, hornbeam, and nettle-tree, are ripe, and may be gathered, at the time of the first hard frosts of October, and all require the same treatment, viz: they may be planted directly after ripening or may be kept in some moist place until spring, and then planted. It injures all of the above kinds to dry them.

The scarlet and silver maples, canoe and river birches, and elms, ripen their seeds early in June, and should be planted immediately without drying. In good land they will grow from 3 inches to 3 feet the first year. They may also be dried and kept.

The sugar maple, white pine, hemlock, spruce, arbor-vitæ, white cedar, larch, black and yellow birches, ripen their seeds in August and September, and may be either sown directly or dried and kept till spring before planting.

The pitch pine and white birch ripen from November to March, and of course should be planted in the spring.

When seeds are not liable to be destroyed by birds, mice, or squirrels, it is best to plant them in the fall, as that is the time designed by nature; and a most shady place is

much the best, especially if they are to be transplanted.—The arbor-vitæ, white cedar, larch, spruce and hemlock will seldom vegetate unless they are sown in wet and shady places.

All seed trees need but a thin covering of earth, if the ground is moist; but if the ground is dry, there should be allowance made and the seed covered a little deeper as the ground is drier. One of the best rules that can be given is to follow nature, as near as possible, in the time and manner of planting and also in the selection of lands. All the lighter kinds of seeds, that are scattered by the wind, need but very slight covering, and generally succeed without anything more than the rains will do.

It is a very good plan—and is in practice in the old countries—to sow several kinds together, as the oak and pine, or the pine and white birch, as they protect each other, and one may come up if the other fails.

The red cedar, mountain ash, and the thorn ripen their seeds late in autumn, and require two years to vegetate—they should be gathered and kept in some shady place under ground one year previous to planting.

All the oaks, nut-bearing trees, maples, bass, &c., require strong moist soil, while the evergreens, white birch, &c., will generally succeed on the lightest soil. The white pine probably adapts itself to all kinds of land better than any other tree, growing equally well from the quagmire of our swamps to the top of the highest hills.

If trees are to be transplanted from the forest, care should be taken to select good, strong, growing young trees from places where they have not been too much shaded—have them taken up carefully and set out as soon afterwards as possible. They may be set at first from 3 to 6 feet apart, and the trees may be of any size from 1 to 12 feet high, or more, according to taste, and care should be taken not to have them set much deeper in the ground than they formerly grew in the woods.

A growth of wood could probably be obtained in this way sooner than by sowing the seed; but the first cost would be much the most. If seedling trees from the seed bed were to be transplanted, I should recommend to transplant them when much smaller; say from 1 to 3 feet high.

The protection of our forests might be all summed up in a very few words, viz: keep out the cattle, fire, and the speculators, and let the birds live, especially the wood-peckers.

Every man knows what would be the consequence if the fire should run through his wood-lot; but it is not every man that is aware of the damage his cattle do to his lot by being allowed to run in it; and any one would hardly be able to make him believe that a herd of cows would destroy more young wood in a few days or weeks than they were all worth, and yet it is frequently the case.

It is probably not of much consequence to say anything at this time about the destruction of our old growth, as it is nearly all gone in this region, but do our best to save the young growth that is left and let the speculators go for the present.

In regard to birds, it is well known that all kinds, that live in the woods, subsist, at times, almost wholly on insects, and it is also very well known by naturalists and others, that all insects are injurious to trees, hence it should be the duty of every man to do all in his power to save the birds from harm. I have never known but one kind of bird that ever injures a tree, that one is the sap-sucker, a species of wood-pecker, which sometimes eats the tender bark; and he, probably, does ten times more good than mischief.

It is thought by very many of our farmers that the forest does best if let alone and not pruned, and as the work has generally been done, this is the best way; but, from nearly twenty years experience in the business, I have come to a different conclusion. I know of no good reason that can be

given why a wood-lot may not be as much benefitted by pruning as an orchard. Every good cultivator of fruit knows that it injures his orchard very much to let an inexperienced man prune it with an axe, as people generally have done their wood-lots, and the same rule applies as well to the one as the other.

The method I should recommend to be pursued would be, to thin out all trees that are dead or show signs of decay, and also others where they are so thick as to interfere with each other too much, and to trim off, with a pruning saw, all dead and decaying limbs and others where they interfere. I very much doubt the propriety of cutting off good, thrifty, growing limbs, unless they interfere badly with other trees or limbs of the same tree.

It is frequently said that it does not pay to trim them. It may be so in some instances; but when wood sells for from four to nine dollars per cord in our markets, it does not take but a small pile to pay for a day's work. I know of many places near by, where a man may turn out two or three dollars worth per day and still leave the lot in a better condition to grow for ten years more, than if not pruned.

In order to have a growth of trees start in good shape, it is necessary to have them very much thicker at first than they can grow when they become larger, and most farmers argue that they will die out and thin themselves best if let alone, and refer you to the old growth and talk of the clear lumber they make where the limbs have rotted off; but they do not consider that our climate is very different from what it was when the whole face of the land was covered with wood, and that those old trees that made the clear lumber had been 200 years in growing from 1 to 2 feet in diameter; nor that the dry winds now sweep through and between our scattered wood-lots, and have a tendency to preserve the dead limbs from decay, so that they remain on the tree in a dry state and make what the

carpenters call pin knots, so that the only way by which we can have clear lumber is to prune the limbs off when the trees are small. It is well known to every observing man that the lumber of our second growth grows much faster, and comes to maturity in much less time, than it took for the original growth, and that there is a vast difference in the value of the lumber, some of it being more valuable and some of it less—the ash and white pine, for instance—the former being more valuable and the latter less.

In regard to the length of time that a lot of wood should be left to grow, people differ very much; but where wood is for the fire, and dollars and cents are the only objects in view, from 25 to 30 years is long enough. But, if this process were followed out, the question would soon be asked—where is our lumber for building and mechanical purposes to come from? and the answer, will and must be, let your wood-lots stand longer, and prune and continue to thin out, and you will soon have lumber enough.

In conclusion it may not be out of place here to give a few instances of the growth of some trees on my own land, to show at what age of the tree we may expect good sized lumber. I have two white pines one of which was trimmed about 50 years ago to the height of about 25 feet, and a man, who was present at the time said that it was just the right size to hew for a six inch square stick; the other was pruned 5 years later and was just about the same size; they stand in thick woods and are 100 feet high and girt, 4 feet from the ground, 8 feet 3 inches each, and are estimated by good judges to contain more than 1200 feet each of merchantable lumber. Another lot of six trees, where the old growth has, more of it, been cut out, measure 7 feet 7 inches, at four feet from the ground, are not so tall as the others, but grow much faster, as I can remember the time that I could carry off, on my back, the whole of a tree, and my age is 52. Another lot which came from seeds of the first mentioned tree, and cannot be more than

40 years old, are now 60 feet, or more, in height, and large enough to make timber 40 feet long and from 6 to 10 inches square. From the above it will be seen that the trees gain in quantity much faster after they are 40 years of age than they do before.

The study of nature, as seen in the growing forest, is a very profitable and pleasing one to me, and it seems strange that there are not more who pursue and enjoy it.

FOREIGN FOWLS.

BY JOHN C. MOORE.

"The Hen Fever" has come and gone. The turpitude of the many quacks who treated the disease, and the credulity of its numerous victims, have been ludicrously, and fully, exposed. The sequent opinion—at least that which is the more generally prevalent—is that the results of honest attempts to improve the character of domestic poultry, through the importation of foreign varieties, have been failures. This belief is correct, and it is not so, which paradox is explainable according to the manner in which the efforts to improve have been conducted.

It is well known to every one who has studied the animal economy, even superficially, that a deterioration in shape, character, quantity and quality of produce invariably associates itself with the transfer of an animal from its native to more artificial or less favorable, conditions of existence—that an undue change of climate, food and treatment always produces physical revolutions which do not tend to improve the subject of cultivation. It has been precisely so with the eastern fowls imported into this country during the past seven years. They came here exotics—hot-house creatures—and being required to demonstrate all their native superiority in our frigid climate, of course they failed at the outset to meet the requirement, and the process of acclimation put a veto on their utility as a separate feature of domestic culture.

I have known many who made the attempt, under circumstances of *common* management to preserve their east-

ern fowls pure, and to realize their fabled qualities of production at the same time, but I never yet saw one individual who felt satisfied with his labor. A few gentlemen have used *artificial* means to test the question of superiority of the eastern varieties of poultry, and with some success of demonstration, but at an expense of time and outlay which would produce a ruinous aggregate. Few, perhaps, have had a fuller opportunity than I have had, to prove what was, and was not, to be expected from imported fowls in the common way of improvement; and the result of my experience teaches me that, in the proposal to *substitute* such for what we call our native fowls, (but which are of eastern origin and merely acclimated,) instead of *mixing the bloods*, the practical error existed. In 1849, when the primary symptoms of the "hen fever" began to appear, I imported from Shanghae a flock of fowls, only three of which reached me in health—one male and two females. The male died in a few days after I got him home. I put a small Dorking male in the yard with my large Shanghae females, who produced several dozens of eggs, which I had hatched out by common barn-yard fowls; and the produce was a lot of finely compacted fowls, of large proportion, and generally uniform grey color, which at four months old gave four and a half pounds each of chicken-flesh, in color and consistency fit for the table of an alderman. This result satisfied me that benefit could be derived from my importation in one shape. The succeeding year my crossed chickens proved the best layers I have seen, and such has been my experience up to the present time.

I have used males of the Dorking, the Black Spanish, and the gold spangled Polish variety—*invariably preferring the males as the smallest fowls*—and, in all respects, with the exception of color, the properties, and weight of produce has been the same.

In 1850, I supplied myself with almost every feature of

the fowl-fashion of the period—even including that monstrosity (then in its incipiency,) called the "*Botherum Pootrum*," by myself, I believe, in a sportive moment. I soon found out that the expense of separate quarters for various so-called varieties of Chinese fowls had been lost; for, out of a pair of yellow Shanghaes, brown ditto, grey ditto, and ditto, ditto to any extent, feathered legs or smooth underpinning, no matter which, I could procure members of every kind in my possession, from the purest white to the most dingy black, and also with every intermediate shade, mottle and mark.

My *Botherums* were all *Shanghaes* or *Cochin-Chinas*, and *vice versa*. Moreover, each generation became more gaunt and stilty than its predecessor; and, with the best care during winters, one half of the lot had their toes, feet or legs frozen off, which liability never attached to a single member of the crossed varieties. As layers, the imported stock possessed rather semi-occasional properties; and such hath been my respect for them as an article of separate cultivation, that I have only some half dozen of them left, and these are kept on account of their fullness of shape and reasonable altitude, and with the hope that their produce next year may be like them, and constitute a fine table fowl.

As I said previously, I am satisfied that good has proceeded from crossing the foreign with the common breed of fowls, but the attempt to preserve the former pure, in this climate, is foolish and eminently profitless. The good I specify may be seen almost every where, in the enlarged size of the domestic fowls, and the greater uniformity of their color, which is always a safe indication of strength of blood — an article which was much wanted in fowls prior to the past three or four years—for *in and in* breeding had reduced their stamina, so that reproduction was more a matter of chance than certainty. It is not so now.

It occurs to me, in connection with this subject, that the prizes offered for the so-called varieties of eastern fowls, by the N. H. Agricultural Society, are not calculated to serve the best purpose. One prize is sufficient for the whole class, as from any one of its members may be had all the other varieties. The best shape and size of Chinese fowl may be worthy a prize; but color amounts to nothing, any more than does smooth or feathered legs, any and both of which can be produced in a single clutch from fowls of any of the denominations of eastern origin. The Black Spanish, Dorking and Bolton Grey varieties are the only other gallinaceous fowls the Society ought to countenance, as they generally produce their like, which is not the case with the common barn-yard stock, any more than the Shanghaes. I have elsewhere spoken, incidentally, of the Polish fowl, but I cannot recommend it to favor through my own experience. It is very delicate when young, and difficult to raise; and I find this variety rather erratic in their habits, and in laying. But the above is submitted with deference, as reasons may exist of sufficient importance to obviate the objections I have specified.

NATIVE CATTLE OF NEW HAMPSHIRE.

BY C. E. POTTER.

The first cattle brought into New Hampshire, were imported by Capt. John Mason, from Denmark, in 1631-2-3 and '4. There might have been a cow or two imported prior to that time for the purpose of furnishing milk for the fishermen; but in those years Mason made frequent importations of bulls, oxen and cows, for the purpose of permanently stocking his manor of "Mason Hall."

Mason & Gorges had not succeeded according to their expectations with their patent of Laconia, and in 1630, to secure some advantage to themselves, and to their associates in England, as well as their agents upon the Piscataqua who had been active in executing the plans of the proprietors, they obtained two patents of the lands upon the Piscataqua. One included the lands and works at Dover Point, and was made to the Hiltons and their associates who had operated there. This patent included Dover Neck, the north part of Newington and Greenland, the whole of Stratham, and a part of Exeter up to Squamsauke falls, carrying a breadth of three miles down the Exeter river and Great Bay, to the Piscataqua. This was called "The Hilton Patent." The other patent was at the mouth of the Piscataqua, on both banks of the same, and included a large part of Kittery in Maine, all of New Castle, Rye and Portsmouth, and the south parts of Newington and Greenland. This patent was issued to Sir F. Gorges, Capt. John Mason, and seven associates, and was known as "The

Piscataqua or Rendezvous Patent." Upon this patent, Mason had erected extensive salt and fish works. In 1634, Mason, by purchase, had become the sole proprietor of the "Piscataqua or Rendezvous Patent," and had imported numbers of Danes and Danish cattle for the purpose of establishing a permanent colony. The Danes were acquainted with making potash, and were brought over to engage in the manufacture of that article. Upon their arrival they immediately set about the business for which they were employed, and thus the manufacture of that article was first commenced on the Piscataqua. The Danish cattle were imported by Capt. Mason on account of their capacity for labor and enduring the rigors of our climate. They were large, of powerful make, and yellow color. These cattle were mostly kept upon Mason's plantation at Newichewanock, which was at Berwick, and so extending across the river at Salmon and Great Falls. This plantation was commenced by Mason on his grant of Laconia and was continued with great outlay till the time of his death. Others of these cattle were kept upon his plantation at Strawberry Bank (now Portsmouth) and at Kittery Point and his manor of Mason Hall on Odiorne's Point, in Rye.

At this period, there were probably some three hundred cattle upon Mason's patents, and these were mostly *Denmarks*. Mason had imported many swine, but of what breed or country, we know not. It is probable that Mason had at this time, more cattle, by far, than were in all the rest of New England. In fact, it has been estimated that at this time, there were not much over two hundred neat cattle in the Plymouth and Massachusetts colonies. Capt. Mason died in 1635, and his affairs became very much embarrassed. His people upon the plantation at Piscataqua, seized upon his personal effects to satisfy their demands against his estate. Those that fancied such property, appropriated his cattle, and the best were soon dispersed among the small farmers up and down the river. But there

was still a large number left unappropriated. These were left upon Mason's estate, subject to the orders of his executrix. At Piscataqua, including the manor of Mason Hall on Odiorne's Point, west of the mouth of the Piscataqua and the settlement at Kittery Point, there were in July, 1635, the following animals belonging to Capt. Mason—as appears by a receipt and schedule of his agents, Ambrose Gibbins and Thomas Wannerton—viz:—"24 cows, 2 bulls, 22 steers and heifers, 10 calves, 92 sheep and lambs, 27 goats, 64 hogs, old and young, 13 mares and horses, 9 colts." Besides these, there were others at "Strawberry Bank" and still more by far, as has been suggested, at "Newichewanock," where was Mason's principal establishment—his saw-mill, corn-mill and potash works being at the latter place—the first establishments of the kind erected in New England. Of the amount of stock at these last places, we have no account; but there can be no doubt of the fact that the number of cattle at Newichewanock was greater by far, than at all the other plantations—as it was Mason's principal establishment—and his people were engaged in that kind of business requiring the aid of oxen and horses.

As before named, upon Mason's death, his personal effects were seized upon by his servants, and his cattle were thus appropriated. His agent, Francis Norton, drove an hundred head of these cattle to Boston and sold them.—The account of this transaction has been handed down in certain depositions, which, as they give a history of these cattle—their origin, size, color and destiny—as well as of some other matters of interest connected with our early history, we here subjoin:

Francis Small's Deposition.

"Francis Small, of Piscataqua, in New England, planter, aged 65 years, maketh oath, that he hath lived in New Eng-

land upwards of 40 years; that he very well knew the plantations Capt. Mason had caused to be made at Piscataqua, Strawberry Bank, and Newichewanock, and was well acquainted with all the servants employed by Capt. Mason upon the said plantations, some of whom are yet living; and that there was *a great stock* at each of these plantations. And this deponent doth very well remember that Capt. Mason sent into this Country eight Danes to build mills to saw timber, and tend them and to make potashes; and that the first saw and corn mill, in New England, was erected at Capt. Mason's plantation at Newichewanock, upward of fifty years, where was also a large house, with all conveniences of out-houses, and well fortified with store of arms. That about forty years since the said houses and buildings were burnt to the ground, but by what means this deponent doth not know; *That about the same time this deponent, with others, was employed by Capt. Francis Norton, (who then lived at Capt. Mason's house at Piscataqua, called the great house) to drive about one hundred head of cattle towards Boston, and the said Capt. Norton did goe with the cattle; that said cattle were there usually sold for five and twenty pounds, the head money of England.* And the said Norton did settle himself at Charlestown, near Boston, and wholly left Capt. Mason's plantation, upon which the other servants, *shared the residue of the goods and stock among them, which were left in that and the other Plantations,* and possessed themselves of the houses and lands, *and this deponent doth verily believe that from the cattle sent thither by Capt. Mason, most of the cattle in the provinces of New Hampshire and Maine, have been raised, for this deponent doth not remember or heard that any one person else did bring over any.* That Thomas Wannerton, a servant to Capt. Mason, and lived in a fair house at Strawberry Bank, about the year 1644, did carry quantities of goods and arms belonging to Capt. Mason's plantation, and did sell them to the French that

did inhabit at Fort Royal, where the said Thomas Wamerton was slain. That some time after one Sampson Lane came over from England, with power, as he pretended, to look after and take care of the aforesaid plantations, and did settle himself in the great house at Strawberry Bank, and made additions thereunto, where he continued about three years and then returned for England, upon whose departure John and Richard Cutts got into possession of the aforesaid house and lands at Strawberry Bank, but by what right this deponent never heard, and have sold several tracts, upon which many houses are now built and possessed by the relations of the said Cutts.

FRANCIS SMALL.

Sworn before me the 8th September, 1685,

R. CHAMBERLAIN, Justice P."*

The foregoing deposition is conclusive as to the fact of the sale of the cattle in Boston, by Norton, as the deponent assisted in driving them to Boston. It also establishes the price of cattle at that time, and that there remained about one hundred cattle upon Mason's plantation, after his servants had taken as many as they desired. The facts sworn to in Small's deposition are corroborated, and the origin, extra size and color of these cattle, are given in

NATHANIEL BOULTER'S AND JOHN REDMAN'S DEPOSITIONS.

"Nathaniel Boulter, aged 60 years, and John Redman, aged 70 years, of the town of Hampton, in the Province of New Hampshire, Yeoman, make oath that they were two of the first planters that did sit down at Hampton, aforesaid, about forty years since by the authority of the Massachusetts General Court, which gave power to some few persons (called Sellectmen) who came likewise to inhabit in the said town, to grant or sell land to others as they

*See files in Secretary of State's office at Concord.

thought fit. That upon these deponents first settling at Hampton several of the servants of Capt. Mason or his heirs, came from Piscataqua to Hampton, and did forbid these deponents and others from settling in the said town without license from the proprietor or his agents, and paying a quit rent. But these deponents and others of the inhabitants being backed by the authority of the Massachusetts government which had declared those lands to be in their jurisdiction, no regard was had to the prohibition by Capt. Mason's servants. And these deponents do very well remember that Mr. Mason had made a great plantation at Piscataqua and Newichewanock, *where there were a great stock of cattle, and much land improved—and these deponents about forty years since, did see a drove of one hundred head of great cattle, or thereabouts, that came from off Capt. Mason's plantation at Piscataqua, and drove through the town of Hampton, towards Boston, by Capt. Norton and others, the servants of Capt. Mason or his heirs, and there sold and disposed of (as these deponents were informed) by the said Capt. Norton, who did then settle himself in or near Boston, and deserted the plantation at Piscataqua, and these deponents do further testify that such cattle were commonly valued at five and twenty pounds the head, being very large beasts of a yellowish color, and said to be brought by Capt. Mason from Denmark.* And these deponents say, that soon after Capt. Norton's going to Boston to inhabit, the Massachusetts government did lay claim to the whole province of New Hampshire, as pretending it to be within their patent, and did accordingly exercise a jurisdiction therein and required those inhabitants to take an oath of fidelity to them.

NATHANIEL BOULTER,
JOHN REDMAN,

Sworn before me the 6th of November, 1685,

R. CHAMBERLAIN, Just. P."*

*See files in Secretary of State's office at Concord.

It might be inferred from the preceding depositions that Capt. Norton was one of those servants who was engaged in embezzling the property of his principal; but he undoubtedly remitted to Mrs. Mason the funds derived from the sale of these cattle. This is evident from the fact, that in 1639, sometime after the embezzlement of Mason's effects and the dispersing of his Denmarks, Mrs. Mason continued Norton as her general attorney. All of which is apparent from the following order for the delivery of the swine remaining on the plantations upon the Piscataqua:

"Loving friend Mr. Gibbins,

I understand that you have some swine in your hands belonging to my late husband, Captaine John Mason, and now to me. I pray, good sr, deliver them speedily to ye bearer hereof ffrancis Norton whome I have made my generall attornie for my whole estate in your parts, so whence I pray you afford your loving assistance in what is convenient, and your aquitance and love wherein shall oblige me to remaine

Yor loving friend,

ANNE MASON."

East Greenwich, May 20th, 1639.

Now these Denmarks of Capt. Mason, thus distributed through Maine, New Hampshire and Massachusetts, soon became mixed with the cattle that had been imported into the Plymouth and Massachusetts colonies—and which may be mainly called Devons—and formed that *cross* or breed of cattle denominated NATIVES. This *cross* predominates now throughout New England, though it has been qualified by importations of black cattle from the Spanish islands, and by a sprinkling of Durham blood. Our native cattle then at the present time may be put down as grades of *Devon, Denmark yellow, Spanish black,* and a slight sprinkling of *Durham.*

As before suggested, however, the *Devons* and *Denmarks* predominate, as is found by the large numbers of *dark red, light red,* and *yellowish red* cattle seen among the native cattle of New England. The *yellow* comes from the *Denmarks* imported by Capt. Mason; and its mixture with the *dark red* of the cattle from Devonshire accounts for the shades of *dark* and *light red* found among our *native cattle.* In fact, the characteristics of these Denmarks are every where seen in the large *light red,* or *yellowish red* cattle, with branching horns, long gaunt frames, powerful in the yoke, and when stalled, of extraordinary weight. Look at our exhibitions of working cattle throughout New England, or in the butchers' pens, and we shall find that the best cattle have some of the characteristics of these Denmarks—showing their descent without mistake. We have often tried the experiment with some of our best cattle growers, and have never known it to fail.

The Denmark importation is what gives superiority to the working oxen of New England. It is true that there is a prejudice among farmers against yellow cattle—but it is one of *fancy* merely, for oxen of that color are generally of docile disposition, tractable, and always excelling in strength, in short among the very best oxen upon our farms. Facts go to show this—among others this one:

"Out of an 100 yokes of the finest draught cattle of Massachusetts, which in 1822 had been exhibited at the Worcester Show, the best were taken to Brighton, where a pair of very *light yellow* oxen received the premium for *docility* and *speed* at the plough." These oxen were natives and descendants of Mason's Denmarks.

After the cross of Devons and Denmarks, the next decided modification of the natives was by the introduction of the *black cattle* of Spain. These were generally introduced by the way of the West Indies. From these are the various shades of *black* and *blackish* cattle seen throughout New England. Of these we have never had a favorable

opinion, yet it is barely possible that their friends can point out some good qualities.

The fact that the *red* cattle among our natives are considered as the best workers, of the best forms, and as the best for the dairy, and that they are undoubtedly in part of Devon origin, speaks much in favor of Devon stock.

But we are candidly of the opinion, that this excellence in our *red* and *reddish natives*, is a result of crossing the original Devon with the Denmark, and of breeding them upon New England soil and among New England men. Upon this latter point we are not alone; for John Hare Powell, Esq., a distinguished agriculturist and breeder, of Pennsylvania, says, "I should ascribe, the extraordinary performance of New England cattle, to the skill, sagacity, singular steadiness, and peculiar firmness of the men—to care in selection—and to the face of the country in which they are bred." These have accomplished much—but crossing the Devon with the Denmark has accomplished as much or more.

These remarks lead us to the point which we wish to make with our readers, and this is, that we doubt the utility of a general introduction of pure Devon stock. They are of fine color, sleek and glossy, not good milkers, and by no means extraordinary workers. Then why so much pains and expense in importing and obtaining Devon stock, when other breeds, the "Improved Short Horn," or the "Holderness," are better milkers, by all odds, and no Devons that were ever imported, or that now exist in England, can compare as draught oxen, in docility, speed and bottom, with our own New England *natives?* Our working oxen are the surprise of all Englishmen, in activity, docility, patience and strength, and yet we are beginning to run wild after Devon bulls and Devon cows—a breed, for all practical purposes, decidedly inferior to our own *native* breed.

But we don't wish you to take our word for this; hear what Mr. Powell says upon this subject:

"I can conceive no advantage which is to be had from the introduction of imported Devons among our farm stock. Have any instances been brought wherein it appears that, in activity, patience or strength, they have in Great Britain, surpassed the oxen of Massachusetts, or New York?

"I have never seen in Europe, performance of oxen, comparable to that, which in Massachusetts would scarcely be remarked."

Mr. Coke, in speaking of his favorite race, acknowledged "that difference of opinion must necessarily exist, yet on the light lands of Norfolk, Devons were allowed to excel." Have the rare Devons, for which we are indebted to the munificent and distinguished improver of Norfolk husbandry, shown extraordinary excellence in the secretion of fat, production of milk, early maturity, or weight in the valuable parts? They, no doubt, during six years, have had all, that food, care and skill could effect, to make evident the vast superiority of this active and fashionable race, over the gross, heavy beast, which we Pennsylvanians prefer for their vulgar hind quarters, productive udders, propensity to sleep, and grow fat."

Mr. Powell "can conceive of no advantage to be derived from their introduction among our farm stock," and Mr. Coke claims excellence for them, only upon the *light* lands of Norfolk! How then can we expect superiority in the Devons upon the *hard, rocky, hilly* lands of New Hampshire?

But let us see what a distinguished writer in England, says of Devons. Mr. Lawrence, in his treatise upon cattle, says:

"In my own opinion, the purest Devons frequently run to too great length of leg, crooked behind, or sickle-ham-

med, and of insufficient general substance. They are also, I think, inclined to be in-kneed, that is, crooked in the fore legs; a defect analogous to that styled sickle-hammed in the hinder legs, or, as we may say of the human animal, knock-kneed, than any other reputed race. These cattle have generally, for a century past, commanded the best price at Smithfield; but, of late years, the buyers there have shrewdly remarked, that although blood and fine form are very pleasing to the eye of the gentleman breeder, yet substance and weight are, and ever must be, the grand objects at market."

The Devons are the speediest working oxen in England, and will trot well in harness; in point of strength they stand in the *fourth* or *fifth* class. They have a greater resemblance to deer than any other breed of neat cattle. As milkers, they are so inferior to both the long and short horns, namely, both in quantity and quality of milk, that they are certainly no objects for the regular dairy, however pleasing and convenient they may be in the private family.

By these remarks, we would not be understood to undervalue the Devons, or the efforts of those gentlemen who have spent time and money without stint to introduce that stock among us. On the contrary, we approve of their efforts most highly. But thus approving them, we sinerely believe that the advantages to our farmers, to be derived from the importation of pure Devon stock, are to arise from the crosses of such stock with natives, and other approved breeds of cattle. Of one thing we are most sure, the Devons, or any other imported stock, can never, of themselves, produce working oxen superior or even equal to those we have of native origin at the present time in New England. Old England cannot think of competing with us in this particular. Our working oxen are unrivalled. Then why seek to supplant them? Why not rather improve them?

And it is not a little singular that the most noted milkers

in New England have been *native* cows. And is it too much to assume, that if the same pains had been taken to improve our milkers that have been taken to improve our oxen, or that have been taken in England, we should now have had native cows throughout New England, that might have challenged the world in their productiveness?

THE IMPORTANCE OF CHEMICAL ANALYSIS OF SOILS, TREES AND PLANTS.

BY WILLIAM PRESCOTT, M. D.

[This Essay is intended as a sequel to the one entitled "GEOLOGY AS CONNECTED WITH AGRICULTURE," by the same author, and published in a former part of this volume.]

The study of soils, in their connection with cultivated plants, presents a wide field for experiment and critical research.

It is folly to suppose that all soils can be improved with equal facility and profit, or that all vegetables will flourish with equal luxuriance on the same variety of soil. The best way to impart a high degree of fertility to any given piece of earth, is a problem often very complex and difficult of solution. This renders it highly necessary that the farmer investigate the science of fertility; that he study carefully into the chemical composition, not only of the different varieties of soil upon which he is to operate, but also of the different vegetables he intends to cultivate. He should endeavor to discover what portion of the constituents of plants he should husband with the greatest care, and what part nature will supply in water, air and other materials, necessary to their growth.

To suppose that one can produce a root, seed, or stem from other ingredients than such as Providence prepared and fitted for the purpose, is to assume that there is no difference between lime and iron, or that wheat and the fir-tree are identical.

Finding, as we do, many different elementary bodies in all fertile soils, and in all cultivated plants, it is alike unphilosophical in science and unsafe in practice to assume that any one mineral can perform the functions of any other mineral in the economy of plants and animals. We may be profoundly ignorant of the office performed by an atom of lime, iron, sulphur, carbon, phosphorus, chlorine, nitrogen, potash, or magnesia, in any of the phenomena of vegetation; yet direct experiment and universal experience have proved the necessity of having all these substances in the soil, as well as silica in a soluble form, before it can be productive of those valuable plants cultivated by the farmer.

For the formation of productive soils, an intermixture of at least the three earths—clay, sand and lime—is absolutely necessary. The oxide of iron is also a requisite ingredient. Vegetables will not grow in any *one* of these earths *alone*, nor will they flourish in any *two* of them, if the *third* be entirely wanting. He who possesses on his estate these three earths—clay, sand and lime—of a good quality, with facilities for drainage or irrigation, has all the materials for permanent improvement.

The other most valuable elements of fertility, and valuable in proportion as they happen to be deficient in any soil, are *ammonia, phosphorus, sulphur, potash* and *chlorine.* It may happen that one of these is abundant, and another is scanty, or that *more* than one is scanty, or even altogether absent, &c. Now to know and understand, *which* is deficient, or altogether wanting, and how to supply that deficiency, is a desideratum of the first importance to the practical agriculturist.

Plants are essentially composed of carbon, oxygen, hydrogen and nitrogen. Some small portion of the earths and alkalies, also, is found by chemical analysis in plants, which in all probability are formed from more simple elements, by the process of vegetation; for it is now ascer-

tained, that the earths and alkalies are compound substances. Where the essential earths are properly intermixed, instances are recorded of land producing a succession of good crops for many years without manure; but such instances are very rare, for in this state, and in most of the states in New England, the soil is either deficient in some one or more of the earths, alkalies, or vegetable mould, or they are too wet or too dry, too loose or too adhesive, to admit plants to extract the food or pabulum, in proportions necessary for their nourishment and growth.

How are these difficulties to be corrected and overcome? It is at once obvious that the deficiences must be supplied by the addition of the earth or alkali wanting, while the tenacity, compactness and humidity is to be overcome by the addition of manures. These will not only furnish an abundant supply of carbon, hydrogen, nitrogen, &c., which the plants require, but they will also render the soil more loose and pulverulent, and thereby enable the plants to extract these substances with greater facility.

Phosphoric acid, ammonia and potash are the substances that are least abundant in nearly all cultivated lands. If we study the natural products of the earth in connection with the elements of fertility, we shall find that large, long-lived, and thrifty forest trees grow only in soils which are rich in potash. When the farmer has occasion to burn maple, elm, oak, walnut, beech, birch, and other hard-wood forest trees, he finds them rich in this alkali; and he also finds that soils that produce this kind of timber, are always good for agricultural purposes. Their productiveness is not to be ascribed to potash alone, for all the other elements of available crops, are equally present; but the existence of an abundance of magnificent potash-yielding forest trees will never deceive the farmer as to the natural capacities of the soil. Hence, when a farmer can learn what amount of potash 100 pounds of his soil contains in an available condition, he may judge with considerable

safety of the natural resources of his land. This alkali exists in some soils as high as two per cent.—a quantity, however, rarely found—and in others, ten thousand parts of earth yield not one of potash. Such soils are always unproductive, nearly barren. And so, also, with lime; land that contains no lime is unproductive, but so small a quantity as one-fifth of one per cent. will render it fertile, for even this small quantity amounts to more than two tons to every acre, supposing the soil to be but seven inches deep.

The best wheat growing soil of our western prairies contains only from one to one and a half per cent. of lime.—This is the principal earth which has been used to intermix with soils, and is considered as a manure; but its operations as such are very imperfectly understood. It combines with vegetable and mineral acids in the soil, which might be injurious to vegetation. It also unites with silica, forming the silicate of lime. In all these forms it operates as a fertilizer, by promoting the growth of plants to which it is applied, and also by neutralizing those substances which are deleterious to vegetation. If the soil contain copperas or sulphate of iron, which is poison to most vegetables, the lime will seize the sulphuric acid contained in the copperas, and form the sulphate of lime or gypsum, a well known fertilizer, and leave an oxide of iron which is also essential in all productive soils.

Swamp muck contains a large quantity of vegetable acid which renders it worthless until the acid is neutralized by being mixed with lime, or some other alkaline substance. So that whether lime exists in soil in the form of a phosphate, carbonate, sulphate, humate, or silicate, it performs a healthful influence in promoting the growth of the crop.

The phosphate, as it exists in the bones of animals, is being better understood than formerly, and by those who have made trial of it, is duly appreciated and highly prized for its fertilizing properties.

In fact, lime, in all its forms, and in all states of combi-

nation in which it exists, or is applied to the cultivated field, produces a salutary effect, both on the land and on the production of the soil. On the land, by opening and rendering freer such soils as are stiff and clayey, while it increases the porosity of those that are already light and sandy. To the former the mechanical action is generally favorable, to the latter, frequently the reverse. It increases the fertility of all soils where lime does not already abound, and especially adds to the productiveness of such such as are moist or contain much inert vegetable matter, which it calls into action. When used freely it will destroy plants which are natural to sandy soils, also such as contain a free acid like sorrel. It not only increases the quantity, but improves the quality of the crop. Grain is heavier and produces more flour to the bushel, where the soil possesses a sufficient supply of this earth, while the flour is said also to be richer in gluten.

It renders potatoes more agreeable to the taste, and more mealy. It improves turnips both in quantity and quality, while peas are more pleasant to the taste, and it is said more easily boiled soft. The effect of lime is greatest when well mixed with the soil, and kept near the surface, within the influence of the atmosphere, also upon such soils as are newly turned out by the plow; and this effect is increased by the vegetable and other organic matter which has accumulated within them.

There is one thing in relation to lime the farmer should never forget, and that is, that it *expels ammonia from fresh* and *decomposing organic manures.* It should therefore never be applied to the same piece of land at the same time or within several months of the time that the ammonial manure is applied, whether that consist of stable manure or guano. When lime is to be applied to the same tract with the manure, it should be applied in the autumn, when it will become converted into the mild state—that of carbonate of lime—before the manure is laid on in the fol-

lowing spring. For the carbonate of lime has no sensible effect in expelling the ammonia of decomposing manure.

As a chemical constituent of the soil, lime supplies a kind of inorganic food which appears to be necessary to the healthy growth of all our cultivated plants.

Whenever a vegetable is burned, it leaves a certain per cent. of a solid inorganic compound matter, called *ash*.—This substance, which is now considered of great importance in promoting the fertility of the soil, should engage the attention of the practical agriculturist.

In considering the chemical nature of the ash of plants, we learn that lime, in all cases, forms a considerable proportion of its whole weight. Hence, the reason why lime is regarded as a necessary food for plants. And the existence of this earth in the ashes of wood and other vegetables, is one important source of their value as a manure in the cultivation of lands.

The quality, and, in some measure, the quantity, of the ash left by plants when burned, varies with a variety of circumstances. It always consists, however, of a mixture of variable proportions of carbonates, silicates, sulphates and phosphates of potash, soda, lime and magnesia, with certain other substances present in smaller quantity, yet, more or less, important to vegetable growth.

Thus according to chemical analysis, 100 parts of the ash of the following forest trees consists of:

	Sugar Maple.	Hickory.	White Oak.	Beech.
Potash,	6.50	16.00	10.75	22.11
Soda,	2.33	0.06	4.25	3.32
Lime,	40.00	38.00	37.00	25.00
Magnesia,	8.00	6.00	0.25	5.00
Phosphoric acid,				5.62
Sulphuric acid,	1.17	3.25	0.17	7.64
Phosphate of lime,	7.50	11.00	21.25	
Oxide of iron,				3.77
Oxide of magnesia,				3.85
Carbonic acid,	37.25	28.33	14 00	14.00
Chlorine,		0.06	1.75	1.84
Silica,		5.17	0.50	5.52
Soluble silica,		0.34	0.55	
Organic matter,			6.40	
Alumina,				2.33

	Elm wood.	Elm bark.	Bass.	Pitch Pine.	Chestnut.
Potash,		3.79	7.05	14.10	3.00
Soda,		1.65	6.50	20.75	1.20
Lime,		27.46	41.75	13.60	42.00
Magnesia,		13.10	7.40	4.35	3.40
Phosphoric acid,				0.90	
Sulphuric acid,	12.02	0.14	0.60	3.45	0.45
Phosphate of lime,		3.40	16.00		12.00
Oxide of iron,				11.10	
Oxide of magnesia,				2.75	
Carbonic acid,		39.44	18.00	17.50	26.50
Silica,			2.25	7 50	1.50
Organic matter,		2.00	2.25		

The composition of these different kinds of ash, it will be perceived, is very unlike, that of the pitch pine, for example, being greatly richer in potash and soda, and poorer in lime and the phosphates, than the other species, while the maple, hickory, and bass-wood are richest in lime and the phosphates.

Another important fact is here developed. While the bark of the elm is rich in lime, magnesia and carbonic acid, the wood of the trunk exhibits no trace of any inorganic matter, except 12 per cent. of sulphuric acid.

If we now examine the component parts of the ash of cultivated plants, we shall be led to the conclusion that wood ashes perform an important part in the process of vegetation, and are, therefore, of great benefit as a fertilizer when applied to the soil.

Their *immediate* benefit is most perceptible upon leguminous plants, such as clover, peas, beans, &c., and also upon tuberous and tap-rooted plants, such as the potato, beets, carrots and turnips.

The following table exhibits the rate per cent. of *ash* remaining after the combustion of 100 parts by weight, of each of the following vegetable substances:

Substances burned.	Per cent. in ashes.
Wheat,	2.01
Rye,	2.37
Indian corn, (yellow,)	1.92
Barley,	5.52
Oats,	4.14
Buckwheat,	1.09

Substances burned.	Per cent. in ashes.
Garden peas,	3.18
Field peas,	2.79
Garden beans,	4.38
Potatoes,	3.50
Carrets,	5.77
Red beets,	6.43
Mangel wurtzel,	5.02
Ruta baga,	4.01
White turnips,	7.02
Unions,	6.53

By chemical analysis it has been ascertained that 100 parts by weight of the ashes of the following plants produce the results here stated:

	WHEAT.		RYE.		BARLEY.
	Seed.	Straw.	Seed.	Straw.	Seed.
Potash,	32.24	12.48	31.89	17.03	19.10
Soda,	4.06	0.25	4.33		
Lime,	2.06	4.94	2.84	8.98	3.60
Magnesia,	10.94	1.43	9.86	2.39	7.60
Oxide of iron,	2.04	0.06			
Silica,	2.28	69.94	0.17	63.89	
Phosphoric acid,	45.73	8.53	46.03	3.80	31.20
Sulphuric acid	0.32	2.33			
Chloride of sodium,					2.30

	OATS.		INDIAN CORN.		
	Seed.	Straw.	Seed.	Stalks, &c.	Cob.
Potash,	12.90	12.18	23.92	12.76	35.80
Soda		14.69	22.59	8.51	5.91
Lime,	3.70	7.29	0.16	6.09	0.30
Magnesia,	7.70	4.28	2.41	1.25	0.90
Oxide of iron,	1.30				
Silica,	53.03		9.50	53.55	13.60
Phosphoric acid,	14.90	1.94			
Sulphuric acid,	1.00		4.38	4.19	0.13
Chlorine,	0.30		0.41	9.76	0.13
Carbon,	4.70				6.35
Oxygen of bases,	14.97				
Earthy phosphates,			35.50	19.25	23.92

		PEAS.		BEANS.	
	Buckwheat.	Seed.	Straw.	Seed.	Straw.
Potash	21.27	43.07	8.20	42.13	21.26
Soda,	2.32		12.50	0.90	4.56
Lime.	3.01	4.77	30.53	8.65	21.29
Magnesia,	15.84	7.25	6.00	6.55	4.88
Oxide of iron,		0.81	0.93	0.36	0.90
Phosphoric acid,	49.85	40.56	9.21	31.87	7.35
Sulphuric acid,	1.55	0.44	7.01	4.50	3.21
Silica,	1.95	0.33	0.62	0.88	3.86
Carbonic acid,		0.70	17.36	1.94	22.73
Muriatic acid,		1.96	7.15		
Muriate of soda,				1.90	9.05

In the preceding and following table, one important fact should be noticed, and that is, that while the seed of peas and beans, and the tubers of the potato are rich in *potash* and the *phosphate of lime*, the straw of each contains but little of those articles, but is rich in the *carbonate* of lime.

POTATOES.

	Tuber.	Straw.	Turnips.	Mangel Wurtzel.	Carrot.
Potash,			33.00	28.25	20.25
Soda,			7.50	15.25	16 00
Lime,	2.00	2.00	20.00	4 00	30.00
Magnesia,	5.00	1.00	3.00	4.25	4.25
Phosphoric acid,	12.50	12.06	10.00	4.00	6.00
Sulphuric acid,	3.50		12.00	4.25	8.25
Chloride of sodium,	4.50	2.80	13.50	35.00	12.25
Carbonate of potash and soda,	58.00	4.34			
Carbonate of lime,		43.68			

ASH OF GRASSES.

	Red Clover.	White Clover.	Mixed Hay.
Potash,	14.85	14.33	1.50
Soda,	1.40	3.72	0.50
Carbonic acid,	16.81	18.03	1.00
Phosphoric acid,	6.35	11.53	10 80
Lime,	35.39	26.41	30.00
Carbonate of lime,			6.90
Magnesia,	11.22	8.15	21.80
Chloride of sodium,	2.36	4.94	3.06
Chloride of potassium,	2.96		3.06
Silica,	3.34	3.68	
Sulphuric acid,	4.18	7.21	
Sulphate of potassium or sodium,	2.23		8.84

TABLE OF THE ANALYSIS OF THE ASH OF FRUIT TREES.

	Apple.	Pear.	Peach.	Plum.	Grape.
Potash,	3.10	22.25	7.11	11.00	13.39
Soda,	2.50	1.84	11.15	2.25	9.69
Lime,	12.00	12.64	23.26	17.00	4.39
Magnesia.	3.00	3.00	6.40	5.50	1.74
Sulphuric acid,	19.50	0.50	1.50	18.00	2.06
Carbonic acid,	31.25	27.69			3.50
Phosphate of iron,	0.25	0.31	0.32	0.60	0.50
Phosphate of lime,	32.00	27.22	29.19	24.99	32.55
Phosphate of magnesia,	1.00		1.34	1.16	0.75
Chloride of sodium,	0.45	0.45	0.16	0.45	0.75
Silica,	0.40	0.30	1.35	1.70	29.65

The constituents of the ash of the cherry tree do not materially differ from those of the plum, both being rich in

potash, lime and the phosphate of lime. They also contain a large per centage of sulphuric acid, which indicates that the sulphate of lime, (gypsum,) would be a valuable manure for these trees.

The analysis of the ash of the currant shows that fruit-shrub to be particularly rich in soda and the phosphate of lime.

Now if we compare the results of the preceding analysis we shall see the importance of certain substances in the cultivation and growth of such fruit and vegetables as are of the highest importance to the farmer. No one who reasons upon the subject will fail to see how many important facts are only beginning to dawn upon the patient investigation, and how much may yet be learned by repeated experiment.

A little observation will satisfy any careful inquirer, that hitherto but little has been practically known of the proper mode of applying the food of plants so as to render them uniformly productive.

The results of chemical analysis show us the elements which enter into the composition of the *inorganic* parts of trees and plants. These results and these investigations are of the highest importance to the cultivator, inasmuch as they elucidate many difficult points, and establish a basis for a more rational and scientific system of manuring.

In examining the preceding tables it will be seen that potash, soda, lime, and the phosphate of lime enter largely into the composition of the ashes or inorganic parts of all trees and plants. Now no intelligent cultivator can examine these results without being conscious that this large necessity existing in plants for these substances *should* be supplied; and as they do not naturally exist long in a soil in sufficient quantity, it becomes important that they be applied *artificially*, and from time to time as they become exhausted.

It should be understood that these inorganic substances

form, as it were, the skeleton or bones of all vegetables, as they do more emphatically in all animals. The bones of animals are lime, united with phosphoric and carbonic acids—chiefly the phosphate of lime—and the frailer network skeleton of the trunk, leaves, and fibres in plants, is formed of precisely the same substance.

The bark, the veins and nerves of the leaves, the skin of fruit, are all formed upon a frame-work of this organized salt of lime, which, in the growth of the plant, is taken up from the soil, and circulates freely to the outer extremities of the tree or plant in all directions.

Wherever the soil is wanting in potash, lime, and the phosphate of lime, common manures from the stable and barn-yard will *not* answer the purpose. In this case the remedy is plain and simple. Potash, lime, and bone-dust are the remedy. If they are not at hand, common *wood ashes*, which contain all of them, and which all families make, may be substituted, and may be used in much larger quantities than are commonly applied. Since these salts penetrate to the remotest extremities of trees and plants; since, indeed, they are the foundation upon which a healthy structure of all the other parts must rest, it appears rational to suppose, that upon their presence in sufficient quantity, must depend largely the general healthy condition of the stem, leaves and fruit.

Animal or Stable Manures.

We have only time to state here that the *quality* of these is affected by a great variety of circumstances—such as:

1st. *By the kind of food upon which the animal is fed.*

2d. *By the quantity of urine voided by the animal and preserved.*

3d. *By the length of time during which the manure has been kept.*

4th. *By the way in which the manure has been preserved.*

Since, then, the quality or richness of the droppings of the same animal is liable to be affected by so many circumstances, it is obvious that no accurate general conclusions can be drawn in regard to its precise fertilizing virtue, when applied to this or that crop.

From numerous experiments which have been made, it would appear that night-soil is most propitious to the growth of rye, cow manure to oats, and sheep manure to that of corn, barley, and wheat,—all other circumstances being similar.

As the geological origin and mechanical composition of soils were pretty fully discussed and considered in the "Essay on Geology as connected with Agriculture," it only remains to recommend to every practical agriculturist to procure a chemical analysis of his soils, the better to enable him to conduct his agricultural operations with profit and success.

That the farmer may have an opportunity of comparing the probable productiveness of his land with that of others which has been analyzed, and which is known to be productive, we have compiled the following table of the analysis of soil of the upland farm of the Shakers in Canterbury, of Long Island in the Winnipisseogee, of the intervale on the Merrimack river, of the intervale on the Connecticut river, and the farm of Dr. J. A. Kennicott, near the summit of a rolling prairie in Illinois.

By comparing the soil of his farm with the constituents in this table, the farmer will at once see in which of the essentials his soil is deficient, and he can supply those deficiences by the application of such manures, (organic or inorganic,) as he finds it necessary, to restore the substance or substances wanted.

A table of the analysis of soils from various sections:

	INTERVALE. Merrim'k River.	INTERVALE. Conn. River.	LONG ISLAND. Winnipesseogee.	SHAKERS'. Canterbury.	PRAIRIE. Illinois.
Water,	3.02	3.00	2.00	4.05	
Silica,	79.09	84.04	86.07	77.02	76.00
Oxide of iron,	3.05	3.06	2.06	3.03	4.25
Alumina,	4.04	2.09	3.01	2.08	4.25
Carbonate of lime,	0.09	1.00	9.05	1.08	1.50
Magnesia,	8.03	0.01	0.02	1.00	2.50
Vegetable matter,	7.05	4.09	4.08	9.09	
Vegetable matter and water combined,					10.00

It may not be amiss here to state that, for every one per cent. of lime or other substance in the soil, there is contained in every acre, within seven inches of the surface, more then ten tons. Hence, it may be seen that where there is a *deficiency* it will require five tons to the acre to supply the soil with one-half of one per cent. of the substance needed.

ÆSTHETICS OF FARM LIFE.

BY F. B. EATON.

"A thing of beauty," said the poet, "is a joy forever." The utterance may be never so true, and yet how vast the difference in our ideas of what is a thing of beauty. The Indian admires his ochre and vermilion face, the yellow son of the celestial empire admires in extasy the crippled feet of his lady-love, while the yankee husband, secure in the fastnesses of his native hills, is content with the cut of his swallow-tailed coat, and sees a sufficient grace for him in the rough hides of his barn-yard "critters." There is beauty in the sylvan fancies that cluster about a cottage farm-house, with the pattering music of the flocks, the mellow call of the herds, and the "cock's shrill clarion" in the early morn; but what a dispeller of enchantments is a great square house, desolate as a barn, standing full in the dusty road, without a single tree near by—fields all run to waste, and fenced by tottering walls of a revolutionary epoch—piles of stones turned loose on all sides of the public road, or piled in ragged heaps, just where the best mowing should have been—lean, sorry, hungry kine, consuming the bitter herbs of poor pasture, and staggering home at night, cross, ill-conditioned, "skim milk" cows, of whom four do not equal the value of one well-fed creature —lousy calves, ticky sheep, and breechy oxen! There is precious little beauty in all this.

It is, or may be, a matter of some curiosity to know how many of the thirty thousand farms in New Hampshire

are in condition to be called beautiful. Let us allow a most liberal space, and give the best of chances. How many are complete in the first requisite of any fine farm—order? It is to be feared that a majority of cases present an unfavorable view, and that where one well cared for, well fenced, neat farm, in field and wood, excellent in all departments, is found, many more exhibit radical defects in management. They seem mostly new and unfinished—so they have for many years—for the reason that their owners can never get time for any thing more than the very great amount of hard work which is required to clothe and feed, so to speak, their farms. On an average, the farms of of this State consist of more than seven hundred acres each—quite too much for one man to cultivate—and when the real proportion is ascertained, and the small farms are counted out, the preponderance of land over labor is still more startling. It is true that allowance is to be made for extensive pastures—for what we suppose to be woodland by the census of 1850, is not included in this estimate—but even then the crying evil of *too much land*, stares one in the face with emphasis. How is one man in his lifetime—and few farms continue in one family longer—to wall,and trim and clear up, to ditch, drain and irrigate, seven hundred acres of our hard soil? We are told that many acres are unfit for cultivation, that all labor would be thrown away, that the cheapest way is, for one man in his life to get what off of it he can, and then to sell, or leave the robbed, impoverished farm to his children. Of these unfit and barren acres, which have been so much complained of, all but a very small minority can be made to produce by fair dealing. Fair play is a jewel, not only in the dealings of men with men, but of men with nature. The earth even cannot be cheated with impunity. We have seen farms enough, hard, sterile, rocky, full of stumps and unpromising swamps, pass from the hands of a discouraged owner, into those of a farmer who carried the same system

of honesty into his labor, that he practiced at other times. The result was as sure as a problem in mathematics. Incredulous neighbors stood by and prophesied evil. "He'd better keep his money," "he'll never get it back," and harder sayings yet, flew about the ears of the man who dared advocate and practice a reform in farming. A few years pass, his fields are burdened with crops, his fruit trees begin to produce, his walls are strengthened up, and the laugh gradually changes to the other side. Enough has been, and is to be seen every day, to overthrow all such argument and pretences, as those under which the careless farmer shields himself. Give freely, and freely ye shall receive.

The first matter of importance is, to own no more land than you can well take care of—or, at all events, concentrate your labor and capital where it will tell. It is sheer folly to mow a hundred acres, and get the produce of ten. Spare no effort to enrich the soil, if you ever mean it to enrich you. Similar remarks have been so often made, that they may seem trite and old, but they are yet far enough from having wrought all the effects they should. It is careful, sensible, well directed effort, that can only ensure success, and which lies at the bottom of all attempts to introduce beauty and regularity into the farms of a town.

Some will say, "go West, where labor is easier, crops are surer, and no manure is required." But is it not a dear sacrifice to give up all your chosen society, the freedom and purity of New England, the schools, the churches, the social life, for at best a doubtful pecuniary advantage? If one considers the risk to be run, the want of a market, the chances of ill health, and the fact that, here or there, nothing can be done without hard labor, the question will not greatly favor the West.

New Hampshire has been called a good State to emigrate from, but if a tithe of all the energy that has distinguished her sons abroad, were but put forth on her own

soil, it would soon be such a State to live in as the world seldom sees. It is not alone to raise great crops, to keep great herds, to own countless acres, that man exists; his primeval heritage was a garden, whose "verdurous walls" and ambrosial bowers pointed upward. The streams that course our mountain sides, the forests that belt our living hills, the incense-breathing flowers of the valleys, are all evidences and examples of the ideal that Nature gives the farmer. Forms of beauty every where are before him, he has but to reach forth and take them. Where in the world is a tree more pleasant than the maple, more brave than the oak, more hardy than the walnut, more bright through winter snows or summer sun, than the broad green hemlock, or the tidy spruce? And yet a little labor will give you each or all disposed in sheltering groups against your bleakest winds. What product of all the earth can be found more exulting in the beauty of Nature, than the broad green leaves and waving tassels of your Indian corn, with its golden autumn burden? Who has not mused of seas as he stood by the waves of the dark green rye, or the lighter glow of wheat fields? And, with these and such as these, the universal school mistress aims to impress on her too often dull scholars a lesson of beauty. We may lack, indeed, the gorgeous foliage of tropical climes, but the clustering vine affords a shade as grateful, and throws a charm as perfect, about the cottage, over whose trellises it clambers, as any found in song or story.

How much better for men of all occupations, in town or city, to contribute something to perpetuate the kindly remembrances of the glens and wood-land farms in every street. The mechanic, as he comes from his weary task, at sunset, can have a better glance at the skies and heaven, and sit with greater content in his shady dwelling. The lean and anxious merchant, with brain racked in counting uncertain gains, can but experience a feeling of relief as he looks through over-arching boughs about his house.

"If this farm had been started right," says one, "I might have done something with it, but it is of no use; if trees had only been set out when grandsire came here, they would have been worth something now." Go to, you foolish logician, you are knocked down with your own argument. Time was, when our ancestors as much disliked a tree, unless it were an apple tree, as they did an Indian, and moreover they had no wish to have the sight obstructed about the windows, or any preventitive to seeing just what their neighbors were about, or where they were going. But that time and that general feeling no longer remains an excuse; the standard of good farms is higher by far than it was twenty years ago, and you are under ten-fold greater obligation to set out trees than your grandsires. The feeling against a tree or bush near the house was once strangely bitter, and the bare door-yards as desolate as a desert. Much may be done by voluntary association, to retrieve this state of things. Would that such were formed, and that each had a special article binding the members every one to clear away the stone, and set trees upon the road-side borders, at least, of his own farm. As a general rule, the greater portion of the thirty thousand farms, which it is possible for a man to ride by in New Hampshire, are by no means attractive to the eye, but may be, for all that, both profitable and productive. The best fields are hid on some southern slope away from the road, or unseemly thickets of birch, alder or beech intercept the view, while the fences, comprising every variety of ragged stone wall, board fence, stump fence, and brush fence, often all kinds at once about a single five-acre lot, present a most unsightly aspect. This may be a sweeping assertion, but it is made with no invidious motive, but with the earnest hope that some attention may be drawn to the subject.

The writer, while passing one day through a Rockingham town, the people of which, though by no means behind their neighbors, are yet but sorry farmers, as a whole, was

accosted by one who had the benefit of twenty years experience near a great city, and had, at last, purchased a farm near his birth-place. "Sir," said he, "will you just step this way, there is a field of handsome grass; last year I cut thirty-four tons of good English hay, and this year I shall do about the same." It was, indeed, a fine field set at regular intervals, and at some distance apart, with young fruit trees. "Now," said he, "step this way and I will show you how I do it." Under his barn were four pens, and four hogs. "I here catch and retain all the solid and liquid manure of my stock, to which is added a layer of saw-dust, then a layer of leaves, and one of muck. My hogs work it over, and next spring I shall have four hundred loads of manure. My neighbors are doing nothing; they go to sleep in the fall and don't wake up till spring. I can't get a man to set a shade tree, build a side walk, or lay over a rod of stone wall." The whimsical earnestness of the man, as he pointed down the lines of crooked fence which bordered the road-side, with few exceptions, as far as the eye could reach, told that he felt what he said, almost as a personal matter, and the neat walls he had furnished about his lands gave emphasis to his words. But his exertions and those of a few others like him are beginning to be seen. The farmers are the bone and sinew of our State; they have heretofore contended with many an obstacle which enterprise and capital are rapidly removing. Under the touch of her kindred genius, Mechanic Arts and Manufactures, new life is infused into Agriculture. Hand in hand, each ministering to the wants of the other, they ascend the way of prosperity, of beauty, of plenty. One great object of the State Society, in its yearly show of products, and its publication of facts, is to add to the useful, the beautiful; to adorn the arts of life with something of that grace which falls from the hand of nature as freely as the dew from heaven. You, husbandmen of the granite hills, can, if you will, make your homes still more attractive, and add

to the delights that cluster about your free heritage at a very little cost and by labor which pays well as it goes.—As to the ways in which these many farms are to be improved, it does not fall within the scope of the writer's intention, to attempt particular directions. There are methods, however, of improving the taste which may be considered: and first, take, at least, one agricultural paper, giving that published in your own State the preference, and when by careful attention to its contents you are able to have another, let it be one of the best in the country. Buy and read agricultural works; above all, if you love your farms, never miss owning the writings of the lamented Downing. His taste was after the purest model. Let your farming implements be of the best kind, and you will accomplish more work and with greater ease. Once a year, if not oftener, two or three days will be profitably spent in viewing, with your own eyes, some of those fine farms which the progress of the day and the impulse of the State Society are bringing to public notice. Nothing is so instructive as the conversation of a real live farmer, and he will often convey more useful information in a few words, while the illustration of his meaning is under your eye, than volumes would afford. If, at any time, business should call you to any of the larger cities, do not lose the chance to see some of the beautiful places in their vicinity. The owner of such a place is, generally, glad to show it, and free to talk of his improvements. When you have seen, do not give way to the idea so apt to arise in the face of contrast, "I can do nothing like this, it takes money." Do what you can in the right line. "Labor Omnia Vincit" is the motto of our Manchester men, and under it the barren sand-hills of old Derryfield blossom like the rose.—Never neglect to adopt such new ideas as are applicable to your circumstances. You can set hedges, drain swamps, plant trees, cultivate vines and flowers, straighten out your

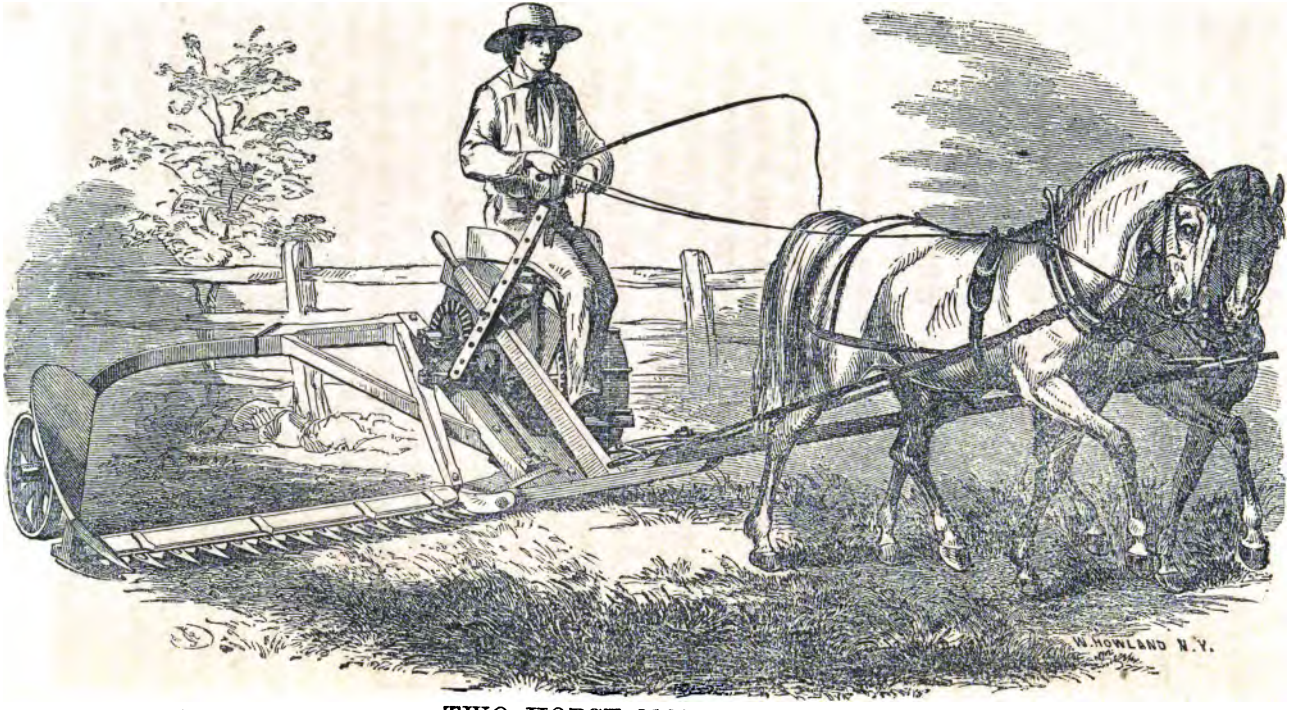
crooked walls and fences as you have opportunity, as well, so far as you go, as the owner of millions.

If more of this general spirit of improvement prevailed we should have better roads, broader, with round, even surface, good water-courses, to receive the spring freshets, watering places made accessible for the traveller's horse, and good stone posts, with plainly painted directions at the crossings, to direct him on his way. Then legal enactments and town taxes would no longer be considered a burden when made for such purposes. The shade of one graceful elm over a brook by the road-side, may afford cooling rest and pleasure to many a weary man and creature, long after the hand of him who planted it has lost its strength forever, and yet at how little expense can a man rear for himself such kindly monuments, and secure grateful recollections. I have seen satisfaction and happiness more genuine, flush of the face of a fine old man who had reached the allotted three-score and ten, as standing by the tree he had that day planted, he said, "it will do somebody some good," than wealth could confer.

It is not, perhaps, surprising that a people, proverbially hasty and careless in regard to the taste that adorns their living dwellings, should also neglect the resting-place of the dead. The hearth-stone and the graves of our fathers, form no tie which may not be soon broken at the call of adventure, the need or greed for gold, and the restless nature of the Anglo-American. It is well not to be fettered by any useless deference to forms, or to make parade over the remains of the departed, but there is a medium equally removed from apparent neglect and ostentatious show.—Neatness, above all, and quiet simplicity should characterize the rural burying ground. In most larger places a great improvement has taken place in this matter within a few years. We hope that the farmers will turn out, with ready hands and willing hearts, to redeem this backward feature of New Hampshire town customs. It may be a

stoical or a philosophical thing to be indifferent to the character of our final bodily resting place, and to suffer the brambles and weeds to choke the rude avenues that lead where we have laid our friends, but it is far from being a christian virtue. How much beauty and how many hallowed associations cluster about the English church yard. It is so that England lives more in her mighty dead than in her present men. We have now, for the most part, the time, the money, and the chance, to improve this very important item of town scenery, not only as a duty urged by principles of taste and refined, good sense, but by our higher moral obligations to those who have gone on before us.

There are other matters, doubtless, on which one might dwell in commenting upon the beauty and propriety developed and latent, in farm life. Such as the leaving, at convenient places, public squares, to be planted with shade trees, and many like things which would readily suggest themselves to those who are in earnest in the improvement of their farms and towns. We submit that it would not be unworthy the dignity of such a body politic, to enter into competition, if a suitable prize were offered, for the best looking town, or the town in which subsequent to the offer, voluntary association should achieve the most in the right direction. It is well known that there are towns which are the boast of the State; they need not be few or far between, and we close this article with the sincere hope, that if there be any good in its suggestions, they may be improved and enforced by the pen and example of those practical farmers whose labors in the cause are an honor to New Hampshire.



TWO HORSE MOWER.

COUNTY SOCIETIES.

ABSTRACT OF REPORTS.

COUNTY SOCIETIES.

There are now existing six Agricultural Societies in the different counties of the State, though they do not in all cases partake of the nature of County Associations. Rockingham has an efficient organization, which numbers some members in nearly every town. The limits of the county are so wide that many towns remote from the centre, and not accommodated with railway communications, do not manifest so deep an interest in the existence of the Society as is desirable.

The Merrimack County Society is limited in its operation to a few towns in the vicinity of Fisherville. A large proportion of the county is entirely uninterested in the movements of the Association.

The Hillsborough Society interests the whole county—from Hillsborough to Pelham, and from New Ipswich to Manchester. It is no ordinary thing to find a county so large as this, in which there is such unanimity of feeling.

In Cheshire County there is sustained a successful Society, which engages the attention of farmers in nearly every town. Besides this organization, the town of Fitzwilliam has for several years kept up a profitable local Society.

Sullivan County has generally sustained a good institution, and is well located, so as to be accommodated at its Fairs without distant travel.

Grafton County has maintained a good Society in the western section, which accommodates but a small section of the whole county.

Thus it will be seen that the southern and western sections of the State—the counties of Rockingham, Hillsborough, Cheshire and Sullivan, a portion of Merrimack,

and a part of Grafton—are embraced in agricultural organizations—that the eastern and northern portions—Strafford, Carroll, Belknap, Coos, a large section of Grafton, and a good part of Merrimack—are not sufficiently interested in the work to sustain such institutions.

Strafford county, on account of its size, position, its soil and its mechanical operations, is favorably situated for the support of a local society. It has some of the best farms, and the most enterprising farmers in the State, and its manufactures are scarcely equalled in other counties. Its large towns are so located as to afford suitable accommodations for fairs, and the holding of meetings for business and discussions. Only one thing is wanting—a disposition to commence.

Belknap and Carroll counties, are each well located for the support of similar societies. If it should not seem advisable to establish an association in each, they might, at present, unite in one organization, and hold their fairs alternately in the vicinity of Ossipee and Gilford. The means of communication are easy, and the interests of the two counties by no means diverse.

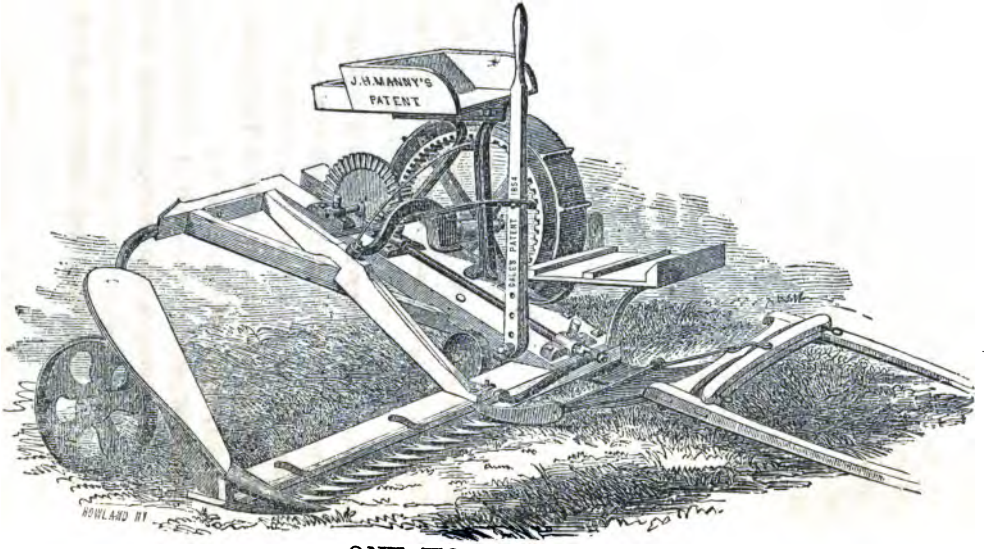
Coos county is sparsely inhabited, and extends over a wide section of country. The different towns in the northern and eastern parts have not the most desirable means of reaching the central parts, though railroad communication will soon essentially benefit them in this respect. Some portions of the county might be accommodated in connection with Grafton, perhaps, which should have another organization, as it once had, in the north—and a few towns in the south of Coos might unite with Carroll, especially if the latter should organize independently of Belknap. Though Coos has not accomplished much in manufactures, it has some successful mechanical operations, and much arable land which is excelled by none in the State.

In the Eastern Judicial District of Grafton, there should

exist another society. There are some fifteen towns in that portion of the county, possessing a good soil, and an intelligent population, which should sustain a flourishing society.

Merrimack county should manifest a more extended interest, and if need be, establish another society, for the accommodation of the towns distant from the centre of the county, though, were it as practicable, we prefer an unbroken county organization.

Now, why will not a few men who have zeal and energy, set about the formation of societies in these localities? Send out circulars and obtain the signatures of a few men in each town, name a time and place for a meeting, and put the ball in motion. It will require some effort, some sacrifice, but there will be a pleasure in it, when it succeeds, and a profit which will fully repay for all toil.



ONE HORSE MOWER.

ROCKINGHAM.

OFFICERS.

President.

HENRY F. FRENCH, Exeter.

Vice Presidents.

JAMES PIGKERING, Newington;
JACOB B. BROWN, Hampton Falls;
MOSES EATON, South Hampton;
DAVID CURRIER, Derry.

Trustees.

WINTHROP H. DUDLEY, Brentwood;
SILAS F. LEARNARD, Chester;
NEHEMIAH P. CRAM, Hampton Falls;
JAMES H. DIMAN, Stratham;
ZEBULON SANBORN, Epping.

Secretary.

WILLIAM P. MOULTON, Exeter.

Treasurer.

R. H. PARKER, Exeter.

REPORT OF PROCEEDINGS.

The Secretary of the Society has furnished the Secretary of the State Society with the material from which the following report of the Fair, and the transactions of the year have been gathered.

The second annual exhibition of the Society was held at Exeter, on the 14th and 15th days of September. On Thursday, the first day, at an early hour, the various thoroughfares leading to the town from all quarters of Rockingham, gave indications that an unusual and exceedingly interesting event was at hand, and before nine o'clock, all the highways entering the town, were thronged with carriages of every description, bearing men, women, and children from all parts of the county, and by multitudes of people on foot. Nor was this all; long lines of working cattle could be seen briskly approaching in every direction, and fat cattle, overburdened with their own dignity, crept in at a snail's pace; sheep frisked along the roads in great glee, and seemed to think the sunshine was sent purposely for them, while majestic bucks tramped on before, apparently intent upon premium honors; swine, some of which had evidently eaten themselves into the belief that locomotion was only intended for the lower classes, grunted along in their carriages and clean straw; fowls, natives mostly, came like lions, in their cages, and some of the cocks looked far more dangerous than the "king of beasts," as usually exhibited to our nervous city belles and wonder-

ing bumpkins; farmers came,—the young and ambitious ready to bet they could beat all creation on vegetables, the old not caring a copper who beat, but determined to bring the young bloods to a severe test,—all, however, armed with some vegetable wonder, such as long ears of corn, that stood up as a terror to grain-speculators; huge golden pumpkin-spheres; great strings of onions,—mighty fountains of tears; mammoth beets,—beat them who can! massive potatoes, some representing the fingers of the "Fat Lady," and some her head; butter in quantities and quality that would delight an entire Broadway; indeed, everything that could be considered a representative of the animal or vegetable kingdom, as it is in this section of the State, was seen approaching Exeter on that eventful morning.

At a few minutes after nine, the procession was formed on the plains, near the residence of J. L. Cilley, Esq. It was the most striking and attractive procession that ever passed through the streets, and was thus formed:

The Lawrence Brass Band,

composed of a company of gentlemanly young men who well understood the concord of sweet sounds, and displayed their skill with alacrity:

Fountain Engine Co. and Tub, of Exeter;
Union Engine Co. and Tub, "
Piscataqua Engine Co. and Tub, "
Dover Band,

a handsome, orderly and well-trained body of young men, and contributing largely to the attractions of the festival:

Tiger Engine Co. and Tub, of Dover;
Cataract Engine Co. and Tub, of Exeter;

the Tigers are a handsomely uniformed and finely appearing body of young men. They were the invited guests of the Cataract Company, and were regarded throughout the whole line of march, with much interest. The Cataract,

who succeeded them, wore a uniform, patterned precisely after that of the Tigers, viz: red shirts, black pants, and red caps, trimmed with white.

Next in order came one of the most striking and beautiful objects ever beheld in any agricultural festival in New England,—

The Hampton Falls Car,

consisting of an immense carriage, some 30 feet in length by 15 in width, constructed expressly for the occasion, and every portion of the wood work, even to the wheels, concealed by evergreens and flowers, the roof being neatly thatched with wheat straw. This car far exceeded in taste, extent, and beauty, that from the same place last year. It bore on the front, in letters formed of evergreen, the words, "*Hampton Falls Farmers' Club.*" The sides and ends, externally, were covered with flowers and evergreens, for a distance of about two feet from the floor, and thence, to the roof, the whole was left open.

Within were the choicest productions that any town can present for the admiration of the great mass of citizens, consisting of no less than seventy-six young ladies and twenty-two young gentlemen. This elegant car, with its priceless freight, was drawn by forty noble oxen.

Two barouches succeeded this car, containing

The Officers of the Society,
The Orator of the Day,
His Excellency Gov. Baker,
Invited Guests.

Next in order, were two carriages, drawn by oxen, containing, in the shape of agricultural implements, the representatives of "Young America," and "Old Fogyism." These, also, were sent from Hampton Falls. In the first carriage were most of the agricultural implements now in use, plows, harrows, ditchers, rakes, seed-sowers, hay-cutters, forks, hoes, &c., all from the establishment of Ruggles, Nourse, Mason, & Co., Boston; on the second carriage

were to be seen the old fashioned flax-brake, swingle, and tow-comb; the linen wheel, whose hum rejoiced the heart of some gentle damsel in Hampton Falls, at least a hundred years ago; lanterns, that looked sufficiently ancient, considering their semi-translucence, to have held a place at the prow of Columbus himself—one, indeed, having served on the Constitution; plows of wood; a morter and pestle, some four feet high, used anciently in the preparation of samp; a cheese press, probably used soon after the Ark was evacuated; together with numerous other articles which our fathers used in husbandry, and which we may well regard as a curiosity for farmers and their wives.

Immediately following these, were, the

Exeter Team,—52 *Cattle;*
Epping Team,—42 "
Brentwood Team,—68 "
Kensington Team,—44 "
Stratham Team,—32 "

The procession passed through the principal streets, to the Show grounds near the railroad station.

Arrived at the Field, a noble collection of animals was exhibited. In swine, sheep, fowls, bulls, cows, steers, and heifers, the county well sustains its reputation. The show of fat cattle did not equal that of last year, nor was it by any means equal to the ability of the county. A pair of cattle from George O. Hilton, Esq., of South Newmarket, took the first premium, and were the objects of admiration of all connoisseurs of cattle present. Their girth was 7 ft. 9 in., and 7 ft. 7 in., and their weight exceeded 4000 pounds. They may well be described as belonging to the mammoth class.

The Working Oxen appeared on the ground in immense numbers. We confess we had no just idea of the number, value, and excellence of the working oxen owned in our immediate vicinity, until we saw them here congregated in long lines, all obedient to their masters' bidding, and con-

ferring honor upon their owners, the county, and the State. The show, in this department, was extraordinary, and pronounced by competent judges, superior to anything they had observed in this section of New England.

The Town Hall, was, through the kindness and politeness of a few of our estimable young ladies, assisted by the excellent Committee appointed by the Society, very handsomely decorated with evergreen, and presented, together with the Court Room below, many features of attraction.

In the Apple Department was a more extensive exhibition, as competent judges from abroad declared, than has ever been seen in this vicinity. The show of apples was uncommonly large and fine, yet we regret to observe that it presented only two or three specimens of some of the most desirable apples now produced in this region.

We observe upon the tables, among other articles of note, four well filled ears of Virginia corn, sixteen rows each, from the farm of Hon. Wm. Noyes, of Atkinson, the seed having been sent from the banks of James River.

From the farm of Joshua W. Pierce, Esq., of Greenland, specimens of thirty-four different kinds of apples were sent, filling one entire table.

From Abner Littlefield, of Greenland, twenty-six kinds of apples, twenty-eight of peaches, twelve of pears, two of quinces, and two of tomatoes. A better collection of fruit from one person, we have never seen.

We observed, among the noticeable vegetables, six apples, weighing six and one-fourth pounds, one weighing twenty-one ounces, from Abraham Rowe, of Kensington. Two bunches of grapes, each weighing two pounds, were exhibited. They were termed the Black Hamburgs, and sold for seventy-five cents a bunch.

Among the fruit and vegetables presented, were choice cranberries, from David M. Currier, of East Kingston; Egyptian corn, from John Sullivan, of Exeter; Porter apples, from L. B. Roby, Exeter; a fine lot of potatoes, beets

and cabbages, from Wm. Odlin, of Exeter; corn and beans, from Chas. Stevens, of Exeter; two noble pumpkins, from Aaron Adams, of Exeter; Egyptian corn, from J. H. Shapley, of Exeter; three varieties of splendid apples, from J. Drown, of Exeter; splendid apples and potatoes, from Edward N. Greenough, of Atkinson; magnificent squashes and potatoes, from Wm. Wadleigh, of Exeter; squashes and beets, from Wm. P. Moulton, of Exeter; 23 varieties of apples and 15 of pears, from George Barker, of Stratham; pears, apples, peaches, potatoes, carrots, onions, turnips, corn—a beautiful display—all from the farm of J. O. Wiggin, of Stratham; huge bell peppers, by Theophilus Goodwin, of Exeter; 2 kinds of potatoes, excellent corn and squashes, by Frederick Robinson, of Brentwood; a lot of apples, from Benj. Dow, of Epping; 2 varieties of corn, from L. D. Harvey, of Epping; wheat, from James H. Butler, of Nottingham; excellent trace corn, from George W. Fernald, of Exeter; melons and cucumbers, from James Palmer, of Kensington; 13 varieties of apples, 2 of pears, and a lot of grapes, plums, corn, and turnips, all excellent, from the garden of J. M. Sanborn, of East Kingston; apples, 4 varieties, and 1 of pears, from Jacob H. Sanborn, of East Kingston; 10 varieties of apples, from Hon. John M. Weare, of Seabrook; apples, 19 varieties, pears 7, peaches 1, all from the excellent garden of Nathan Norton, of Greenland; good squashes and pumpkins, from Amos Tuck, of Exeter; John B. Ryder, Jr., 2 varieties of apples; Nathaniel Gilman, of Exeter, mammoth squash; Ezra Durgin, of Exeter, 1 fig tree and fruit; oats, James H. Dow, of Rye; from George O. Yeaton, 3 varieties of pears, 1 of apples, and 1 of quinces; from Nathan Barker, of Stratham, 8 of apples, 1 of peaches, 6 of pears; from Asa Jewell, 1 fig tree; from Daniel F. Hayes, of Exeter, 18 varieties of apples, 2 of potatoes, &c.; from A. J. Towle, 8 squashes from one hill, 132 lbs.; from J. Lowe, of Exeter, 10 varieties of apples and 2 of pears.

Flowers were presented by J. H. Diman, of Stratham, and Wm. H. Hills, of Plaistow. Both also exhibited numerous specimens of dahlias, and much of the beauty of the Hall should be attributed to them. The former, also, presented a couple of beautiful wreaths, bearing the names of the President and Secretary of the Society.

The plowing match took place on Thursday afternoon. Seven teams were engaged in the match. About one-sixth of an acre was allotted to each, and forty minutes was limited as the time, the judges enjoining on the plowmen not to hurry in their work. The officers of the Society and other competent persons, consider the plowing much superior to that of last year, although there is much room for improvement yet, in this department. When the Society shall have the means to offer premiums sufficient to pay our farmers for practicing beforehand with their plows, and attending the show with their cattle without a pecuniary loss, we may hope to see, as in some counties in Massachusetts, thirty, instead of seven teams in the field. The Hampton Falls Farmer's Club entered by the side of a Michigan and Sub-soil plow, drawn by their finest Devons, an old fashioned wooden and wrought iron plow, drawn by six of the poorest cattle in their town, and attended by a plowman, driver, an extra hand to help set in, and another to finish up behind with a hoe, all clad in the costume of '76. The contrast was ludicrous, and, at the same time, instructive.

A heavy rain set in before the match was ended, and the crowd of ladies and gentlemen were soon dispersed. On the whole, the plowing match was an improvement on that of last year.

The drawing match took place on Friday morning.

The day opened pleasant, although Thursday closed rainy, and many persons, together with their animals had to leave the ground.

The trial of working oxen proved one of the most satis-

factory features of the exhibition. The hill near Deacon John Gordon's, was the place of trial. A load of 1600 bricks, weighing about 7000 pounds upon a large wagon, was drawn, by each yoke of oxen, down the hill, backed a short distance up, and turned, and hauled up to the top.—Six different yokes competed for the premium. Each yoke was able to endure the test, and some of them appeared to feel as if their load was rather lighter than they had been accustomed to. An immense concourse of spectators were present, and expressed great satisfaction at the result. We believe that old Rockingham may fairly claim to stand at the head of the list, in working oxen, especially those trained to work in heavy teams.

At noon on Friday, Professor Nash, of Amherst Mass., editor of the Connecticut River Valley Farmer, delivered an address to the members of the Society and all others present, at the first Congregational Church in Exeter. His address was eminently practical and instructive, abounding in valuable information. His manner was unassuming, but his matter belongs to the schools, the study, the fire-sides, the fields, the common life of the farmer.

Upon the announcement of premiums, from the balcony of the Squamscott House, the street below was one vast sea of people.

The following is the

LIST OF PREMIUMS:

TOWN TEAMS.

Town of Epping, first premium,	$10 00
Town of Hampton Falls, 2d premium,	8 00

The Committee recommended a similar second premium to the town of Kensington.

The Committee on Town Teams, said: "In coming to our decision, we have acted with special reference to the form and build of the cattle; then age, weight, action and training."

BULLS.

Twelve were entered for premiums.

William Hoyt, of Danville, first premium, for native or mixed,	$5 00
Orin Stevenson, Fremont, 2d premium,	3 00

Devon Bulls.

Stephen and Joseph Brown, of Kensington, first premium,	$5 00
Frederick Robinson, Brentwood, 2d premium,	3 00

Durham Bulls.

Joshua W. Pierce, of Greenland, 2d premium,	$3 00

Ayrshire Bull.

Daniel Smith, of Exeter, first premium,	$5 00

Jersey or Alderney Bull.

N. P. Cram, Hampton Falls, 1st premium,	$5 00

FAT OXEN.

Only three entries were made in this department.

To George O. Hilton, of South New Market, was awarded the 1st premium of $5 00
To Wm. Wadleigh, of Exeter, 2d premium of 2 00

COWS.

Only three were entered for premiums.

Daniel F. Hayes, of Exeter, for his native cow 5 years old, 1st premium, $5 00
Jeremiah Robinson, of Exeter, for a native cow, 6 years old, 2d, premium, 3 00
Joseph H. Weare, of Seabrook, for Devon cow, 4 years old, 5 00

ONE AND TWO YEARS OLD STEERS.

Fourteen animals were entered for premiums.

John H. Nichols, Exeter, 1st premium,
John Weare, of Hampton Falls, 2d premium,
Lyford Thing, of Exeter, 3d premium.

To Joseph T. Gilman, of Exeter, the first premium on one year old steers was awarded; to John C. Evans, of South Hampton, the second premium was given; and to Joshua Bartlett, of Brentwood, the third.

THREE YEAR OLD STEERS.

Four entries.

Zebulon Sanborn, of Epping, the 1st premium, $3 00

John C. Evans, of South Hampton, 2d,	$2 00
R. J. Sanborn, of Deerfield,	Transactions.

FOUR YEAR OLD STEERS.

Joseph H. Weare, of Seabrook, 1st premium,	$4 00
John Weare, of Hampton Falls, 2d,	3 00
J. D. James, of East Kingston, 3d,	Transactions.

HORSES.

Awards were made as follows:

H. H. Smith, best stallion;
Benjamin B. Tuttle, next best;
Ed. Sanborn, best gelding;
G. G. Smith, next best;
C. D. Towle, best work horse;
John Lamprey, next best;
Nathaniel Stevens, best 3 year old colt;
James Morrill, next best;
Moses Sanborn, best mare and colt;
Jabez James, next best;
John F. Fowler, best 2 year old colt;
Joseph Cram, next best;
John B. Ryder, best 1 year old colt;
Jabez James, next best.

HEIFERS.

Twelve were presented for premiums.

On three year old:

Sam'l H. Dow, Epping, 1st premium.
John Clarke, Exeter, 2d premium.

On two year old heifers, native or mixed:

Thomas Colcord, Exeter, 1st premium.
S. J. Perkins, Exeter, 2d premium.

One year old Heifer—Native or Mixed.

Jeremiah Godfrey, of Hampton Falls, 1st premium.
Daniel F. Hayes, of Exeter, 2d premium.
Joseph H. Weare, of Seabrook, Devon, 1st premium.

Two year old Heifer—Devonshire.

Stephen Brown, Jr., of Kensington, 1st premium.

The Committee recommend a gratuity to Joseph Brown, of Kensington, for a fine 2 year old Devon.

CALVES.

Wm. S. Yeaton, Stratham, 1st premium.
Caleb Marshall, Hampstead, 2d premium.
John M. Weare, Seabrook, 3d premium.

SWINE.

The Committee on Swine award the following premiums to the following persons:

Charles D. Towle, Exeter, best boar,	$3 00
Aaron Coffin, Hampton, best Suffolk boar,	3 00
John M. Weare, Seabrook, second best Suffolk boar,	Pat. Office Reports.
Jeremiah Robinson, Exeter, best breeding sow,	3 00
Chas. F. Chase, Hampton Falls, best Suffolk sow,	3 00
Rufus C. Sanborn, Hampton Falls, best pigs, 3 in number,	3 00
Joseph L. Cilley, Exeter, next best pigs, 4 in number,	Pat. Office Reports.

Recommendations.—We recommend that for two magnificent *fat hogs*, a boar and sow, presented by James M. Sanborn, of East Kingston, there be given a gratuity of $3 00

We also recommend, that there be paid to Shadrach Drew, of Exeter, for a fine pig, a gratuity of $1 00

We also recommend, that there be given to Aaron Coffin, of Hampton, for a very handsome pig, a copy of the Pat. Office Report.

FOWLS.

Josiah Smith, South New Market, for 5 Brazilian ducks,	Transactions.
J. Spaulding, Kingston, 2 Muscovy ducks,	Transactions.
A. W. Bailey, East Kingston, 6 native fowls,	Transactions.
Charles L. Lowd, Exeter, 5 game fowls,	Transactions.
J. Robinson, Exeter, 9 game fowls,	Pat. Office Report.

The Committee on Fowls report: "We regret that there was not a greater display of fowls, no turkeys or geese having been entered for premium. We suppose the reason of this is, that no premiums were offered which were sufficient to induce our farmers to bring their fowls for a display. A fine lot of Pea-fowl were on the ground, but were not entered on our book, and no name nor owner was to be found while the committee were discharging their duty."

BREAD.

Miss Ann Roach, Exeter, 1st premium,	$3 00
Miss Ann M. Flagg, Exeter, 2d premium,	2 00
Mrs. J. M. Sanborn, East Kingston, 3d premium,	1 00

The committee say: "Of the bread presented by girls under 20 years of age, and unmarried, your committee are not aware of more than one specimen. This was of a quality so superior, that your committee are confident that the young lady who presented it, possesses at least *one* important qualification to fit her for another sphere in life. They are not in a condition to do all that she deserves, but cheerfully award to

Laura A. Purdy, of Exeter, the 1st premium,	$3 00

BUTTER.

Mrs. J. Tuck, Kensington, 1st premium.
Mrs. Wm, Rowe, " 2d "
Mrs. W H. Dudley, Brentwood, 3d premium.

CHEESE.

Benjamin P. Webster, Fremont, 1st premium.
John Sanborn, East Kingston, 2d premium.

FRUIT AND VEGETABLES.

Peaches.

Abner Littlefield, Greenland, 1st premium.
G. B. G. Moulton, Kensington, 2d premium.
N. M. Barker, Stratham, 3d premium.

Apples.

J. W. Pierce, Greenland, 1st premium.
S. F. Leonard, Chester, 2d premium.
Abner Littlefield, Greenland, 3d premium,

Pears.

J. S. Wells, Exeter, 1st premium.
N. Norton, Greenland, 2d premium.
A. Littlefield, Greenland, 3d premium.

Choice Vegetables.

R. W. Currier, East Kingston, 1st premium.
Jere. Godfrey, Hampton Falls, 2d premium.
J. O. Wiggin, Stratham, 3d premium.

LEATHER.

Jacob H. Sanborn, East Kingston, 1st premium.
Josiah Hills, Epping, 2d premium.

HATS.

A. Merrill & Sons, Exeter, 1st premium.

CARRIAGES.

Joseph S. Robinson, Exeter, 1st premium.

PLOWING.

J. M. Sanborn, East Kingston, 1st premium.
S. H. Dow, Epping, 2d premium.
Hampton Falls' Club, 3d premium.
S. B. Clarke, Exeter, 4th premium.

The Committee on Plowing, said: "We are of opinion, that the plowing with the double, or Michigan plow, followed by the subsoil, was of the most skilful kind. The plows used, were of Ruggles, Nourse, Mason & Co's. make, and the team was furnished by the Hampton Falls Farmers' Club. These teams were *not* entered for premium."

The trotting match was not a very noticeable affair, six horses were entered, all in gigs, except that of Mr. E. H.

Valentine, of Exeter, which was in a Concord wagon. Mr. Valentine's horse took the palm from all on the track.

The Committee on Sheep, said: "But twelve sheep were entered for premium. We judge from appearances, that the show will be much larger next year. We found in one pen, six from the farm of Mr. Cotton Garland, of Newington, and in a wagon belonging to William H. Wadleigh, of Kensington, a mother and her four offspring. We would say, as Mr. Wadleigh has said, "beat these if you can."

The Committee appointed to award premiums on family and ornamental needle work, painting, drawing, flowers, and the like, report:

That they fear that they have but imperfectly attended to the duty assigned them, the crowded state of the hall, the absence of a number of the committee, and the pressure of other duties upon those of the committee who were present, having prevented them from giving such an examination to the many articles exhibited as their merits deserved. And your committee would also say, that they have served under a great disadvantage, in not having the aid of ladies, as members of the committee. It must not be expected that the "lords of creation," even, are the best, or even good judges, of the fine and ornamental needle work of the ladies, and, if in making what few awards we had the means to do with, we have failed to appreciate some of the best specimens, attribute it to a lack of the aid and judgment of the "gentler sex." And hereafter we hope the ladies will be fully represented on a committee having such duties to perform, and we would also add, that, in our opinion, the small sum of money usually appropriated for premiums, is entirely inadequate for the purpose. Let the trustees set apart a liberal sum to be distributed as premiums, and we have no doubt but the ladies of Rockingham County will make such a display of needle work as will astonish even themselves, and, instead of now and then a specimen, the hall of exhibition will be

filled with work of superior merit. In addition to those to which we have awarded a premium, we noticed some fine specimens of worsted work by Mrs. E. F. Tucke, Mrs. Woodbridge Odlin, Sarah T. Cram, of Hampton Falls, Ellen P. Smith and Martha R. Robinson; some lamp mats, by Lizzie Thing and Abby B. Lane; embroidered suspenders, by Mrs. E. F. Tuck; scarf, by Lucy Boardman and Mrs. C. D. Towle; also, a piece of work by Sarah F. Plummer, of Epping; embroidered handkerchiefs, by Mary Philbrick, Mary L. Gooch, and Georgeann Nudd, 6 and 8 years old; skirt, by Mrs. Wm. N. Tilton, and one by a lady 52 years old; a quilt made by a lady 72 years old, also one by Mary Ann Harris and Sarah G. Harris, 11 and 12 years old, and one by Grace E. Fernald and Alice M. Fernald, each 4 years old; a rug, by Mrs. W. Leavitt; a fine colored crayon, by Lizzie Lawrence, of Epping; also, some fine specimens by Jennie James, Nancy Gilman, Lydia A. Flagg, and Miss Purdy; two fine specimens of Grecian paintings, by Jennie James; a fruit piece, by Miss M. T. Emery; 1814, a painting in imitation of the old masters, by Mrs. Purdy; a fine variety of dahlias, exhibited on the last day of the exhibition, by William H. Hills, of Plaistow; some boquets, by Mrs. Bufford and others, of Portsmouth; a great curiosity in the shape of a cotton plant in bud, exhibited by Theophilus Smith, and a fig tree, well filled with figs, by Asa Jewell; also, a fig tree and some fine plants, by Mrs. E. S. Durgin; some fine specimens of crochet work, a collar and under sleeves, by Sarah E. Sanborn, Hampton Falls; collars, by Ellen P. Smith, and Martha J. Clark; some woolen stockings, by Hattie Wells, 8 years, and Georgeann Nudd, 6 years old; silk stockings ,by M. T. Emery; a shirt, very well done, by Sarah A. Gale; a shell cross, by Samuel Ranels, very well done; also, some pyramids, by Miss J. H. Folsom; some well excuted specimens of penmanship, by W. H. Currier, of East Kingston, and five pieces of cotton cloth, from the Exeter Manufacturing

Company, woven by Lavina Crummet, M. A. Sanborn, Lydia Hale, Angelina Batchelder, and Sarah Brown—are some of the specimens which came particularly under our notice. In conclusion, the committee have awarded as follows:

Worsted Work.

Caroline M. Shackford, Portsmouth, best specimen,	$2 00
Mrs. N. Gilman, second,	1 00
Also, a piece by Catharine A. Cram, Hampton Falls,	1 00

Embroidery on Woolen,

Louisa De Rochemont, Newington, best specimen,	$2 00
Sarah Palmer, second,	1 00

Embroidered Handkerchiefs.

Sarah A. Gale, Exeter, best specimen,	$1 00

Dress Coat.

Thomas Farrar,	$2 00

Shirt, and Boy's Clothes.

Mrs. H. F. French, made with sewing machine,	$1 00

Patch Quilts.

Lizzie D. Robinson, Exeter, best specimen,	$2 00
E. J. Rand, second,	1 00

Knit and Worked Quilts.

Mrs. John M. Weare, Seabrook, best specimen,	$2 00
Mrs. Joseph Boardman, Exeter, second,	1 00

Blankets.

Mrs. S. W. Leavitt, woven blankets, best specimen,	$1 00

Painting in Water Colors.

Mrs. Samuel Lamprey, Portsmouth, very fine,	$2 00
Mary Philbrick, crayons,	1 00

Papier Mache Table.

S. Jennie James, Exeter, very well done,	$2 00
Ellen A. Laughton, table and portfolio, ornamental glass,	1 00

Dahlias, &c.

J. H. Diman, Stratham, best variety,	$2 00

Wax Flowers.

Carrie Lyford, Exeter, 1 vase wax flowers,	$1 00

The total receipts for admission to the Hall and Field, were $571,73. The citizens of Exeter contributed $200 towards defraying the expenses. The cost to the Society for fencing the ground, music, keeping the animals, and preparation at the Hall, were about $400, and nearly $400 more were paid in premiums. The Society now has somewhat over 400 members. The funds of the Society, previous to the Fair, amounted to $1400, which are well invested, and pay 7 per cent. The funds will be increased this year, by the accession of members and otherwise, some $200.

At a subsequent meeting of the Society, the Committee on Field Crops, awarded the following premiums on crops grown the present season:

R. C. Sanborn, Hampton Falls, best crop of corn, 98 3-4 bushels to the acre, first premium, $5 00

R. C. Sanborn, Hampton Falls, best crop of carrots, 264 1-2 bushels on 1-4 acre, first premium, $3 00

L. E. Lane, Hampton Falls, next best crop of carrots, 123 bushels on 1-8 acre, second premium, Pat. Office Report.

John Nudd, Kensington, best crop of Chenango potatoes, 200 bushel on 1 1-2 acre, second premium, $3 00

John Lamprey, North Hampton, best crop of onions, 35 bushels on 1-8 acre, $2 00

The Treasurer made a report of the finances, showing that the funds of the Society amount to $1570,81, being an increase from last year of $211,79.

At the same meeting a question was raised as to the value of guano, and superphosphate, which was discussed at some length, by the members. Mr. French, the President of the Society, prepared the following account of the discussion:

"Many farmers in this county have made experiments with both, in various ways, and I have intended, if that *leisure time*, of which we sometime fondly dream, ever should arrive, to collect the experience of our farmers and publish it for the good of the community. Enough facts might be brought together from what has been done with these fertilizers in this county alone, to afford pretty satisfactory means of conclusion as to the advantages of their use.—Before proceeding farther, it may as well be suggested, that I shall not undertake, just now, to be very decided in the expression of any opinion on the subject, for fear I may not agree with the principal editor. One gentleman, who did not seem to have a realizing sense of the Protean character of editors, said in our meeting, that he heard *Professor* Brown say at the State Fair in New Hampshire, that he had no doubt that the guano used in Mass., the past season, had done the farmers much more hurt than good.

This statement was received with manifest surprise, and inquiries were at once made as to what a sort of a *Professor* this could be. Some suggested that it must be Professor Brown, of Dartmouth College. "No," said our friend, "it was the gentleman who delivered the address at the State Fair." "The editor of the N. E. Farmer," added another. "The Lieut. Governor elect, who delivered our annual address last year," remarked the third.

If so, it must be because it was improperly applied.—The man who put half a pint of salt in each hill for potatoes, concluded that salt, as a fertilizer, is a humbug, and a farmer who should give his colt a peck of corn at once, would probably infer from that single experiment, that corn is poison to colts. Every one who has used guano, has doubtless been informed that it is so powerful, that corn and even potatoes will refuse to vegetate, if the seed be placed in contact with it. Many persons destroyed their seed last season, by placing it over guano, imperfectly covered. If you converse with these persons, you will find most of them will declare, they did cover the guano an inch or two deep, at least, before dropping the seed, and, if you pursue the investigation further, you will, in nine cases out of ten, ascertain that the covering was done with the *foot* and not with the hoe. It is true, that it makes no particular difference how the earth is put upon the guano, provided it be thoroughly done; but until we see men go into the field and actually cover an acre of corn or potatoes with a cowhide boot instead of a good polished steel hoe, we shall continue to look upon the *kicking* process with suspicion. With the help of my boy Willie, ten years old, I applied guano to about an acre of corn, at the rate of one ounce to the hill, and covered it about an inch and a half deep, with a hoe, with my own hands, and not one single hill was injured, and the whole was much benefitted, while close by, similar land, part of a neighbor's cornfield to which guano had been applied, looked as one might imagine Sodom

and Gomorrah to appear, after the first shower of fire and brimstone. One half of the piece was nearly destroyed, while the other grew very handsomely. I inquired the reason of the difference, and was informed that the first half was carefully covered with a hoe, and the other with the foot.

For one, I am not yet prepared to admit that guano is not to be used to advantage by our farmers in New England.

That it will supersede the use of other fertilizers, no sensible farmer pretends, and no one should neglect to use all the means which Nature has put within his control to increase the quantity of manure on his farm. But, after we have carefully saved everything from the stable and barn, vaults, sinks, swamps, and woods, we have not enough, and sometimes may purchase with profit. Everybody knows something of the labor and expense of hauling and composting stable manure, and the time necessarily consumed in these operations. If we consider, that when we have loaded a ton of manure in our barn cellar, and hauled it out with four oxen, and perhaps laid it in a large pile, and afterwards reloaded it, and dropped it in small heaps, and once more handled it all over in spreading—if we consider that of the whole ton, all but four hundred pounds is *water*, just such as we are deluged with every spring—it does not seem unreasonable that farmers should look carefully for some more concentrated form of fertilizers. My intention now is to say enough to keep the subject in mind, as still an open one, for while we have not yet experience enough in the use of guano, to satisfy us how it may be used to the best advantage, there can be no doubt that it is a powerful stimulant and fertilizer, when properly applied.

The great question yet remains open, whether at the present prices of guano, and of crops, it can be profitably purchased.

I will now give a statement made by Mr. Rufus Sanborn, of Hampton Falls, at the meeting before named, as I pencilled it down, when he gave it. It may be remarked, by the way, that the Hampton Falls' Farmers' Club, of which Mr. Sanborn is a member, has been conducting a course of experiments, with the various fertilizers, which may be of great service, if we can procure them for publication.

Mr. Sanborn's first experiment was with potatoes. He planted them on dry land, on which he had applied sixteen loads of manure and plowed it in. He put 100 pounds of Peruvian guano into the hills, on half an acre, leaving the rest with no manure except what was plowed in.

He dug the potatoes in July, and sold them at an average price of one dollar fifty cents a bushel. He got just twenty-three per cent. more potatoes where the guano was applied, and they were of better size.

His crop was 100 bushels to the acre. The value of the guano and labor of applying it was three dollars, and the gain by its use about twelve and a half bushels of potatoes which sold for $18,75.

On another piece of similar land, he applied swamp mud in the hill, to the whole, and to a part Peruvian guano at the rate of 100 pounds to the acre. The crop was understood to be a later crop than the first, and to have been 209 bushels to the acre, so that the 100 pounds of guano worth three dollars, gave twenty bushels of potatoes worth about $16.

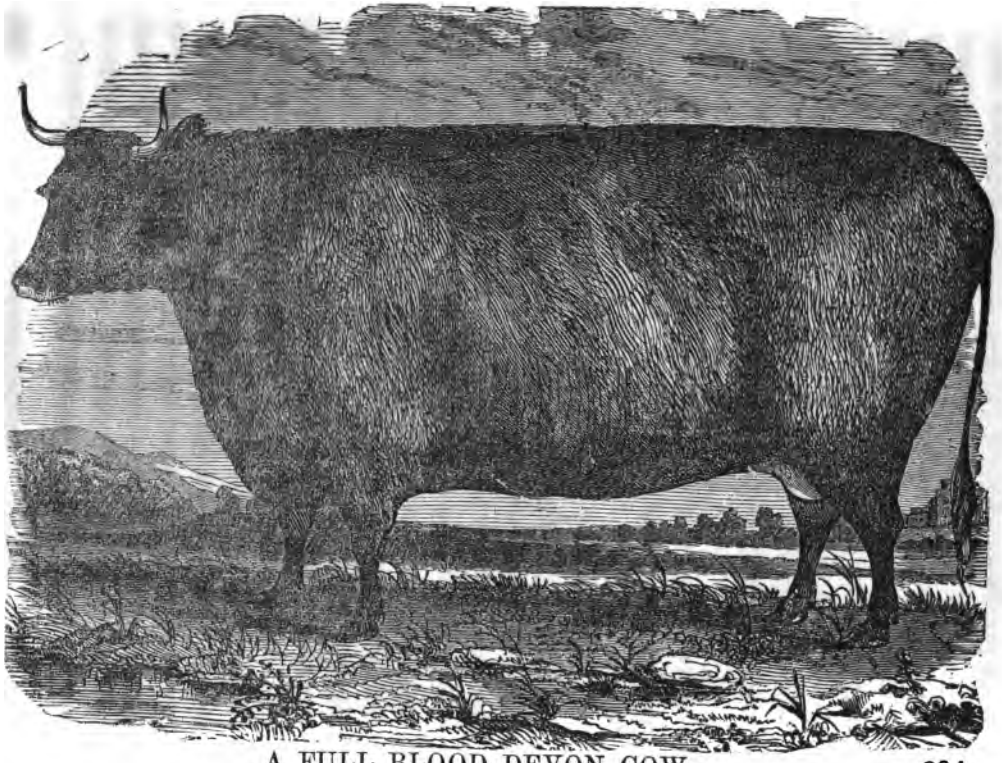
Mr. Sanborn applied 100 lbs. to three-quarters of an acre, and plowed it in for *rye*, leaving a part of the piece with no guano. It was cut by his men in his absence, and not kept separate. The whole crop was twenty bushels to the acre, which he called a small crop. His opinion is, that there was fully double the quantity of straw, and nearly double the quantity of grain on the part where the guano was applied. He applied 200 lbs. to an acre for *barley*, and increased his crop one-third by the means, as compared with a part of the field not guanoed.

The part on which the guano was used, gave a crop of fifty bushels to the acre, so that he got about twelve and a half bushels of barley, worth as many dollars, for about five dollars of guano, to say nothing of the increase of straw.

The barley was raised last year, and the land laid to grass. He says there was this year, no perceptible difference in the crop of grass where the guano was used, and where it was not.

Mr. Sanborn said that he made the common blunder last year of an over dose of guano on his corn. He applied 500 lbs. to an acre in the hill, and burnt up his crop so that he lost half of it. This year, by no means discouraged, he repeated his experiment with corn. He plowed his land with a Michigan plow, sowed on 200 lbs. of Peruvian guano to the acre, plowed it again lightly, say six inches deep, put 100 lbs. in the hill, and 200 lbs. more round the hills, before the second hoeing, and gathered *ninety-eight* bushels of shelled corn to the acre, as measured by his neighbors, and received the first premium of our County Society, for his crop. He has no means of knowing how much the crop was increased by the guano, but stated that he had no doubt it added to it very much.

The foregoing is, perhaps, as much guano as is profitable at one dose. There is a good deal going on in the Granite State, in the way of agricultural investigations and nowhere more than in Hampton Falls. Mr. Sanborn, whose statements are given above, is a reliable man, who labors with his own hands, and whose object is to make his farming profitable. The testimony of one such man who *practices*, is worth that of two mere *professors* of agriculture."



A FULL BLOOD DEVON COW.

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THE FAIR.

The Annual Fair of this Society was held at Nashua, on the last week in September. There was a general attendance of the various committees on the first day, and the work of examination went on briskly. In the vegetable, fruit, and fancy departments, the show was seldom surpassed—never in the county. The Messrs Holts and Perham, of Lyndeborough, Clement, of Hudson, Cutter, of Pelham, Spaulding, of Merrimack, and others, had tables loaded with the best of fruit—apples, pears, grapes, peaches, and plums in abundance, and of the very first quality.—These were on exhibition in the City Hall, together with a very extensive collection of fancy articles and staple goods. There were a considerable number of paintings and drawings. Among them, a piece by Mrs. C. Williams, two by Miss Anne E. Shepherd, others by Miss M. F. Gilman, three by Master Hunt, a lad of but eleven years, and others by Miss Colburn, were worthy of notice. An infant's wrought dress, by Mrs. R. E. Dewey, and a wrought scarf by Mrs. H. Moore, of Milford, attracted much attention, as also did a case of articles on exhibition by the Rev. E. E. Adams. In this case were several pieces of Sevres ware, made at the Royal Pottery of Sevres. There were six cups and saucers and six plates. Each article was painted by a celebrated French artist, in the best style of the art, for Louis Philippe, and these specimens were purchased at the sale of that monarch's effects, by a gentleman of Paris, and were presented by him to Mrs. Adams. In the same

case was a black letter bible of 1506, and another book printed in 1488. Also a specimen of the chirography of the Rev. Leigh Richmond, and a piece from the oaken chair of the venerable Bede. And last, though not least, as the handiwork of a Yankee, specimens of whittling by Mr. Adams, consisting of baskets and other articles made of nut-shells and the like, during a voyage across the Atlantic, when the whittler was in that indescribable state of mind often experienced by a passenger, 'twixt thought and no thought.

There were also cases of splendid silver ware, millinery, furs, dentistry, &c., cotton goods from the "Harbor Mills," locks from the Nashua Lock Company, edge tools from the Underhill Factory, &c. The articles were arranged with taste, and the display was very creditable to all concerned. There was an unusual entry of domestic wines—some very excellent—and particularly, a currant wine, exhibited by Mr. J. M. Rowell, of Manchester.

The vegetables, stoves, sleighs, wagons, corn-shellers, &c., were on exhibition in halls upon the first floor. Among these, potatoes seemed to hold the first rank, being large and plentiful. There were squashes in abundance, and some of the handsomest sweet potatoes we ever have seen raised at the North. The butter and cheese was not abundant, but good, and the bread, white and brown, looked well, but of its taste we know not. The exhibition of cattle was not large, but there were some fine milk cows and working oxen. Also some half dozen bulls of good blood, but not looking so well as usual, on account of the scarcity of good pasture through the past season. This remark will apply to stock generally, and this fact operated to limit the show in this department. At the plowing match there were but six entries, but these six teams did their work well. The best plowing was done in 20 1-2 minutes, by a yoke of black oxen and a Doe's Diamond Plow, the plow held and the oxen driven by the same man.

The attendance was very large on Thursday, and the exercises went off finely. The address was delivered by the Rev. J. M. Merrick, of Walpole, Mass., and was sound in doctrine, and a plain, practical discourse, well delivered, and to an attentive auditory.

One of the pleasantest features of the Fair was the immense car exhibiting the mode of flax manufacture. This was drawn by scores of fine oxen, and in it, working with a will, was a man operating an ancient *flax break*, while another, with his board and knife, was swingling flax, and still a third, an "ancient lady," in dress, at least, was "plying the distaff" at a foot linen wheel. In rear of the car was an ancient "gude man" on horseback, with his "good woman" behind seated upon a *pillion*, a child in her arms, and lovingly clasping her "gude man" around the waist, after the good old fashion of our fathers. The procession was formed at half-past nine o'clock, according to the following programme:

Aid. Chief Marshal. Aid.

Manchester Cornet Band.

Cavalcade.

Lowell Cornet Band.

Baker Guards.

Fire Department.

Marshal. Band. Marshal.

President and Orator.

Vice Presidents, Secretary, and Treasurer.

Clergymen.

Invited Guests.

The Mayor and members of the City Council.

Executive Committee.

Committee of Arrangements.

Committee on Premiums.

Members of the Society.

Ox team, drawing the Hudson High School.

Citizens.

Antiquarian Teams and the Infant Drummer.

Ox Teams.

The dinner came off at the Central House on Thursday; speeches being made by Gov. Baker and others, in reply to various sentiments. The Corresponding Secretary had received the following letters from invited guests, which are published as a matter of permanent interest:

MOUNT HOPE, ALBANY, Sept. 5, 1854.

MR. DANIELS, COR. SEC., &c.

Dear Sir: I am favored with your polite invitation to attend the annual Fair of your County Society on the 28th and 29th inst.

No county in your, my native State, could present stronger inducements to me than Hillsborough. The benign influences of its shows have by no means been confined to itself, nor its attractions to its inhabitants. But unfortunately for me, I have other engagements at the time of your exhibition this year, which must deprive me of the pleasure of participating in it.

With the best wishes that it may not be inferior to your former ones, I am, dear sir,

Yours truly,

E. P. PRENTICE.

DANVERS, Sept. 5, 1854.

My Dear Sir: Your polite invitation to be present at the Exhibition and Fair of the Hillsborough County Society, to be holden on the 28th and 29th days of September current, brings to mind many pleasant recollections of Milford, and the last anniversary,—and will be embraced, if in my power.

The 28th is the principal day of the exhibition at Lawrence. My duty as Chairman of a Committee on farms,

and on Agricultural Implements, will prevent my leaving home on that day.

I may come to Nashua a few hours on the 29th. I shall be most happy to hear the instructions of the gentleman who is to address you on that occasion. Any person who occupies the position he does among the farmers of Norfolk, is worthy of being listened to anywhere. If the Granite State continues to go ahead, as she has done of late, Massachusetts will be proud to look to her for examples of well doing—among which the County of Hillsborough, will be found, not the least conspicuous. While such practical men as Shattuck, Tyler, Cutter and others are ready to put their shoulders to the wheel, that team, must go ahead, and all *we lawyers* can do, is to pick up the pebbles in the way, and occasionally *toss* one at some *self-conceited professor*, of which the field of Agriculture is not entirely free.

Very respectfully
Your ob't serv't.,
JOHN W. PROCTOR.

H. A. Daniels, Esq., Cor. Sec.

GROTON, MASS., Sept. 26, 1854.

To H. A. Daniels: I have the honor to acknowledge your esteemed invitation to be at the annual Exhibition and Fair of the Hillsborough Agricultural and Mechanical Society. I regret that I am compelled to deny myself the pleasure of meeting you on so interesting an occasion, but an engagement of many weeks standing will take me to Berkshire County this afternoon, and I shall not return until the 30th inst.

The prosperity of our Agricultural associations is one

of the most promising indications of the times. I do not know whether town societies have been formed in New Hampshire or not, but I believe that they are destined to be general and useful. Not, of course, as rivals to or substitutes for the county associations, but as auxiliaries to them. They are better adapted than larger organizations to reach and influence the mass of farmers, and their success cannot affect the county organizations unfavorably.

Indeed, if the latter were based upon the former, their mutual prosperity would be secured.

Trusting that your gathering may be pleasant and useful, I subscribe myself,

Your obliged servant,

GEO. S. BOUTWELL.

DOVER, Sept. 25, 1854.

H. A. DANIELS ESQ.,

My Dear Sir: Your note of the 1st inst., inviting me to be present at the Annual Exhibition of your Agricultural and Mechanical Society, to be held at Nashua on the 28th and 29th proximo, has been duly received, and would have been answered ere this, had I not indulged the expectation of availing myself of the same, and participating in the enjoyment of the occasion; but, professional engagements, of a character that I do not feel at liberty to disregard, interfere and forbid the indulgence.

Agriculture and mechanical industry have my warmest and abiding sympathy. The county of Hillsborough presents in an eminent degree the results of an intelligent and assiduous prosecution of those branches of labor. Its population, favored by soil and water-power, have not fail-

ed to improve their natural advantages by a wise adaptation of means to ends, and success and improvement have followed as a consequence.

Association will do much for any branch of industry, providing all engaged in that department of production within its prescribed limits turn their friendly co-operation in means, and skill and influence.

In association, there is opportunity for every mind and hand to contribute something theoretical or practical, to the general stock.

The rearing of horses, neat cattle, sheep, swine, and poultry—the management of the dairy, the cultivation of vegetables of every class and variety, even those of the meanest grade of nutrition—the manufacture of domestic utensils, carriages and implements for the field and the road, and clothing both useful and ornamental, are avocations indispensably essential, and in which no one can engage without treasuring facts profitable to be communicated.

Your Society is making an admirable use of its powers to promote the objects of its organization by frequent meetings, free, broad and familiar discussions of scientific and practical subjects, thereby eliciting thought, stimulating observation and research, fostering rhetorical effort, and imprinting on the minds of its members, in the most indelible manner, the fundamental principles upon which communal thrift and independence are alone firmly established.

I trust your exhibition will show, notwithstanding the severe drought, that the husbandmen of your county have been adequately rewarded for their toil, and that every other department of your Fair will exhibit the cheering evidences of skill, progress, and remuneration.

Most respectfully
and truly yours,

NOAH MARTIN.

PREMIUMS AWARDED.

HORSES.

P. M. Rossiter, Milford, best stallion,	$6 00
H. Bugbee, Hancock, second,	4 00
C. Haywood, Hancock, best stallion colt,	2 00
Abel Chase, Milford, second,	Diploma.
Gilman Wheeler, Milford, best working horse,	3 00
R. E. Dewey, Nashua, second,	2 00
F. S. Rogers, Nashua, third,	Diploma.
H. B. Spalding, Merrimack, best breeding mare,	4 00

BULLS.

No premiums awarded by the judges.

WORKING OXEN AND STEERS.

Horace C. Tolles, Nashua, best pair working oxen.	$5 00
Joseph Marsh, Pelham, second,	4 00
G. W. Parker, Hollis, third,	3 00
David Clement, Hudson, fourth,	2 00
J. J Badger, Milford, fifth,	Diploma.

THREE YEARS OLD STEERS.

Joseph Marsh, Pelham, best pair,	$3 00
O. & L. M. Wright, Brookline, second,	2 00
Horace C. Tolles, Nashua, third,	1 00

MILCH COWS AND HEIFERS.

John Cross, Hudson, best milch cow,	$4 00
Alfred Godfrey, Nashua, second,	3 00
Benjamin C. Andrews, Nashua, third,	2 00
Christopher Page, Nashua, fourth,	Diploma.

THREE YEARS OLD HEIFERS.

James Carnes, Hudson, best heifer 3 years old,	$3 00
Asahel Jefts, Bedford, second,	2 00
Dr. E. Colburn, Nashua, best 2 years old,	Diploma.

FAT CATTLE.

O. & L. M. Wright, Brookline, best pair fat oxen,	$4 00
" " " " second,	2 00
Joseph Marsh, Pelham, for a fat ox,	2 00

TOWN TEAMS.

The premium was awarded to the town of Pelham,	$5 00

SWINE.

Dexter Greenwood, Hollis, best boar,	$2 00
Samuel Walker, Hudson, second,	Diploma.
H. B. Spaulding, Merrimack, best sow,	2 00

POULTRY.

John H. Conant, Nashua, best specimen,	$2 00
Fletcher & Wallace, second,	Diploma.

PLOWING.

James Wheeler, Hollis, best plowing,	$5 00
Daniel Robbins, Nashua, second,	4 00
George W. Parker, Hollis, third,	3 00
Daniel W. Clement, Hudson, fourth,	2 00
Warren A. Butler, Pelham, fifth,	1 00
Daniel M. Fisk, Nashua, sixth,	Diploma.

FRUIT.

C. H. Holt, Lyndeborugh, best show of fruit,	$3 00
John Perham, Lyndeborough, second,	2 00

P. S. Holt, Lyndeboro', third,	$1 00
David Clement, Hudson, fourth.	Diploma.
P. S. Holt, Lyndeboro', best show of winter apples,	1 00
John Perham, Lyndeboro', second,	2 00
P. S. Holt, Lyndeboro', third,	1 00
David Clement, Hudson, fourth,	Diploma.
P. S. Holt, Lyndeboro', best show of winter apples,	1 00
C. H. Holt, " second,	50
John Perham, " third,	Diploma.
C. H. Holt, Lyndeboro', best summer and fall,	1 00
David Clement, Hudson, second,	50
John Perham, Lyndeboro', third,	Diploma.
P. S. Holt, Lyndeboro', best seedling apples,	50
Eli Hamblet, Hudson, second,	Diploma.
Stilman Hutchinson, Milford, best show of pears,	2 00
C. H. Holt, Lyndeboro', second,	1 00
" " " best peaches,	1 00
Samuel Walker, Hudson, second,	50
Samuel Little, Hollis, third,	Diploma.
Lake & Co., Topsfield, Mass., for display of fruit,	Diploma.
Samuel Little, Hollis, best show of plums,	1 00
C. H. Holt, Lyndeboro', second,	50
" " " best Isabella grapes,	75
Frederick Smyth, Manchester, second,	50
Samuel Little, Hollis, third,	Diploma.
John Perham, Lyndeboro', best native,	50
David Clement Hudson, second,	Diploma.
E. Hastings, Nashua, best show of melons,	50
B. F. Cutter, Pelham, second,	25
Jacob D. Dodge, Nashua, third,	Diploma.
Joshua Cleaves, Mont Vernon, best quinces,	50
Samuel Little, Hollis, second,	25
Cyrus Greenwood, Nashua, best tomatoes,	50
Eli Hamblet, Hudson, second,	25
J. M. Rowell, Manchester, best currant wine,	75

John Perham, Lyndeboro', second,	$0 50
John Hartshorn, Lyndeboro', best pickles,	50
P. S. Holt, Lyndeboro', second	Diploma.
" " " best preserves,	50
David Burns, Hudson, second,	Diploma.

Diplomas were also awarded to J. M. Rowell, of Manchester, for currant wine; and to Thomas Marsh, Hudson, Charles F. Spalding, Hudson, B. F. Cutter, Pelham, Geo. Mugatroyd, Nashua, John W. Hayden, Hollis, L. M. Tolles, Nashua, G. F. Spalding, Merrimack, Daniel Burns, Milford, Enoch S. Marsh, Hudson, for their fine displays of fruit, and to C. R. Wallingford, Milford, for grapes.

VEGETABLES.

E. G. Reed, Nashua, best display of garden vegetables,	$3 00
Eli Hamblet, Hudson, second,	2 00
Wm. H. Howard, Temple, third,	1 00
David Clement, Hudson, fourth,	Diploma.
J. M. Rowell, Manchester, best seed corn,	1 00
Enoch S. Marsh, Hudson, second,	50
David Bailey, Hollis, third,	Diploma.

N. S. Farley, Hollis, Hiram Marsh, Hudson, W. A. Swallow, Nashua, Francis Wright, Amherst, B. G. Porter, Nashua, and E. G. Hastings, Nashua, Diplomas each for seed corn.

E. P. Couch, Nashua, best display of garden seeds,	$1 and Diploma.
T. M. Huse, Bedford, best display of onions,	50
Alpheus Eastman, Hollis, onions,	50
Simeon Heath, Nashua, "	50
P. S. Holt Lyndeboro', "	50

John Cross, Hudson, best early potatoes,	$1 00
T. G. Banks, Nashua, second,	50
Joshua Hutchinson, Milford, third,	Diploma
Asa Butler, Jr., Pelham, potatoes,	25
E. P. Couch, Nashua, "	25
J. F. Wallace, " "	25
James Carnes, Hudson, "	25
Wyngate Bailey, Nashua, "	25
B. G. Porter, " "	25
Jacob D. Dodge, Nashua, squashes, melons, &c.,	1 00
Daniel Marshall, Pelham, " "	25
Samuel Keyser, Nashua, " "	25
P. M. Rossiter, Milford, cucumbers,	50
J. E. Churchill, Nashua, melons,	Diploma.
Wm. Swallow, Nashua, case of seeds,	1 00
James Eames, Nashua, peppers,	25
R. Gooduck, " "	25
Simeon Heath, Nashua, beets,	25
Ignatius Bagley, Nashua, potatoes growing in straw,	Diploma.
B. G. Porter, Nashua, egg plant,	50
D. D. Pratt, Nashua, specimens of winter wheat,	25
R. E. Dewey, " " " "	25
Hiram Marsh, Hudson, " " "	25
Daniel Burns, Milford, " " "	25
A. A. Mixer, Bedford, variety of garden vegetables,	1 00
J. H. Forsaith, Nashua, double cucumber,	Diploma.

PRINTING.

Albin Beard, Nashua, best specimen,	$2 00
B. B. & F. P. Whittemore, Nashua, second,	Diploma.

Diplomas were recommended to W. N. Haradon, Manchester, and E. A. Brown, of Nashua, for fine specimens in the art.

Diplomas were recommended to V. C. Gilman, and E. C. Heath, of Nashua, for specimens of superior penmanship; also to Dr. Boynton of Manchester, for beautiful electrotype plates.

COTTON GOODS.

Harbor Manufacturing Co., for brown cotton cloths, Diploma.

" " " colored " " Diploma.

DOMESTIC MANUFACTURES.

Mrs. Frances R. Crosby, Greenfield, (a cripple for more than 14 years,) best quilt, $0 50

Mrs. Hiram Baldwin, Nashua, a very fine bed quilt, 1152 pieces, 25

Mrs. Dr. Kittredge, Nashua, a beautiful bed spread, Diploma.

Mrs. J. D. Otterson, Nashua, best woolen rug, 50

Mrs. Stewart, Nashua, second, 25

Mrs. Sarah E. Clapp, Nashua, beautiful wrought rug, Diploma.

Mrs. B. F. Emerson, 3 braided rugs, Diploma.

Mrs. P. M. Rossiter, Milford, 2 pairs woolen blankets, 50

Mrs Stilman Hutchinson, Milford, 3 pieces carpeting, 50

Reed & Slader, Nashua, variety of carpeting,	Diploma.
Mrs. Luther Hutchinson, Milford, (68 years old,) cotton hose,	25
Miss Lucy Damon, Milford, a linen table cover, made in her father's family more than forty years since, and *patched by herself in more than* 100 *places*,	25

BOOTS, SHOES, &c.

J. Gove, Milford, best 4 calf skins,	$2 00
" " " best 4 sides upper leather,	2 00
Mills & Lewis, Milford, best kip boots,	1 00
W. C. Murch, Nashua, best calf boots,	1 00
C. W. Howe, Nashua, 1 pair pegged calf boots,	Diploma.
Mills & Lewis, Milford, 1 case calf boots,	Diploma.
Miss Julia A. Beard, Nashua, wrought slippers,	Diploma.
Mrs. Sarah J. Norcross, Nashua, wrought shoes,	Diploma.

CABINET WORK.

Charles W. Howe, Nashua, best specimen,	$2 00
J. & A. J. Rockwood, second,	1 00
J. M. Fletcher, Nashua, third,	Diploma.
A. W. Greenwood, glass stand.	Diploma.

CARRIAGES, &c.

George Kenney, Milford, best buggy chaise	$3 00
" " " best one-horse pleasure wagon,	2 00
George Kenney, Milford, best sleigh,	2 00
William Patterson, Merrimack, best ox cart,	2 00

BREAD.

Mrs. David Gilson, Nashua, best wheat bread,	$2 00
Mrs. Jona. Russell, Mason, second,	1 00
Mrs. N. S. Richards, Nashua, third,	Diploma.

BUTTER.

Daniel Marshall, Pelham, second premium,	$2 00
C. H. Holt Lyndeboro', third,	1 00
Wm. Hale, Hollis, fourth,	Diploma.

A diploma to C. H. Holt for cheese.

MANURE.

C. H. Holt Lyndeboro', first premium,	$3 00

STOVES, &c.

Hartshorn & Danforth, Amherst, cooking stove,	Diploma.
" " " tins, and pans, and copper ware,	Diploma.

FANCY ARTICLES.

Mrs. H. D. Gray, Nashua, embroidered apron and collar,	$2 00
Mrs. Sarah A. Barker, Nashua, embroidered cape,	1 00
Mrs. Robert Walker, Nashua, wrought skirt and ottomans,	1 00
Miss Almeda Furbush, wax flowers and fruit, and needle work,	1 00
Miss Lucy Damon, Milford, milk-weed cape,	50
Mrs. Jane Whittemore, Nashua, wrought skirt and collar,	50
Miss T. M. Cady, Nashua, wrought scarf and pocket handkerchiefs,	50
Mrs. R. E. Dewey, Nashua, infant's wrought dress and skirt,	Diploma.
Mrs H. Moore, Milford, wrought scarf,	Diploma.
Mrs. H. A. Daniels, Milford, wrought suspenders,	Diploma.
Mrs T. G. Banks, Jr., Nashua, worsted work,	Diploma.
Miss George Gray, Nashua, crochet work,	Diploma.
M. B. Cook, Nashua, sofa pillows,	Diploma.
Miss H. Bradford, Nashua, bible cushion, &c.,	Diploma.
Miss C. S. Howe, Nashua, wrought vest,	Diploma.
Mrs V. C. Gilman, Nashua, worsted work,	Diploma.
Mrs. C. L. Wheeler, Nashua, worsted work,	Diploma.

PAINTING AND DRAWING.

Miss Ann E. Shepherd, Nashua, "Mouth of the Nashua," and "Falls at Hooksett,"	$2 00
Mrs. C. Williams, Nashua, fancy sketch,	1 00
J. S. Hunt, Nashua 3 crayon drawings,	Diploma.
Miss E. Colburn, Nashua, crayon drawings,	Diploma.
Miss O. J. Gilman, Nashua, Picture,	Diploma.
Miss M. F. Gilman, Nashua, picture,	Diploma.
Miss L. M. Coney, Nashua, crayon drawing,	Diploma.
S. B. Tyler, Nashua, picture,	Diploma.

INCIDENTAL AND SPECIAL IMPROVEMENTS.

The Committee on Incidental and Special Improvements, submit the following Report designating the articles examined and the premiums awarded:

Nashua Lock Co., a fine display of locks, latches, knobs, and unfinished brass castings. The articles exhibited were worthy of the high reputation of the Company, Diploma.

Luke Hale, Hollis, an improved horse rake. An ingenious method of attaching the horse rake to wheels, so as to require less labor than the customary method, Diploma.

Hiram Baldwin, Nashua, a machine for boring locomotive cylinders, a ratchet lever and a clamp drill. The boring machine is a very useful invention, Diploma.

Underhill Edge Tool Co., Nashua, a choice selection of superior axes, chisels, shaves, &c., &c., Diploma.

Joshua Jewell, Nashua, a box of well made and neat turning tools, Diploma.

George A. Rollins & Co., Nashua, an adjustable tool-post for turning lathes—a good article for the purpose for which it is made, Diploma.

Josephus Baldwin, Nashua, samples of bobbins, shuttles, spools, &c., &c. Also a neat variety of axe helves, Diploma.

J. & S. C. Crombie, Nashua, an excellent sample of workmanship in doors and blinds, Diploma.

Edward T. Robinson, Nashua, a miniature locomotive—an ingenious affair for a lad of 13 years, $1 00

C. & G. H. Warren, Hudson, two sets of superior bench planes, 1 00

N. P. Greene, Nashua, a superb specimen of book-binding and blank book workmanship, 2 00

S. B. Richardson, Nashua, for best display of daguerreotypes, $1 and Diploma.

F. A. Brown, Manchester, for second best display of daguerreotypes, Diploma.

Edward Murgatroyed, Nashua, specimen of dyeing—well done, $1 50

A. M. George, Nashua, machine for forming chain links, 1 00

O. D. Murray, Nashua, small card printing press, Diploma.

E. B. White, Nashua, improved screw chuck, a very useful implement, and several jack screws—well made, 2 00

J. F. Fox, Pelham, several choice samples of pruning shears, made by him, Diploma.

J. R. Hamlett, Hudson, a box of well made wrought nails, 1 00

Luke Baldwin, Brookline, four well made kegs and a champagne bottle of wood, Diploma.

Dr. L. F. Locke, Nashua, case of practical dentistry—a skilful and thorough piece of work, $2 and Diploma.

Dr. P. Brooks, Nashua, a well got up case of dentistry neatly displayed, Diploma.
Dr. C. Webber, Boston, some good specimens of work in dentistry, Diploma.
N. W. Goddard, Nashua, a handsome case of silver ware, watches, jewelry, &c., Diploma.
Rev. E. E. Adams, Nashua, a case of antiquities, including some specimens of the art of printing of the 15th and 16th centuries, some rare English fossils, and a beautiful sample of China ware formerly belonging to the Orleans family, Diploma.
J. B. Nichols & Co., Boston, sewing machine, Diploma.
Franklin Monroe, Boston, block of verd antique marble from Vermont, Diploma.
William B. Morgan, Manchester, a superior article for the hair, invented by himself, Diploma.
George Richardson, Nashua, a miniature ship, $1 00
Woodward & Blood, some well made horse and ox shoes, Diploma.

T. G. Banks, Nashua, exhibited a handsome display of paper hangings.

Dr. Josiah Kittredge, Nashua, exhibited a model straw house, a Chinese shawl and lantern.

Mrs. Charles Pearsons, Nashua, exhibited some antique chairs.

Daniel W. Clement, Hudson, exhibited a newly invented hen's nest of straw.

J. T. A. Rockwood, Nashua, exhibited several metallic burial cases.

J. M. Fletcher, Nashua, exhibited a sofa tete-a-tete, and other parlor furniture.

REPORT ON BOGS AND FIELD CROPS.

The Committee on Reclaimed Bogs and Feld Crops would report:

That the bog, entered by David Clement, of Hudson, was reclaimed in three different ways; the first and second would not pay the expense, but the third method of reclaiming it, was found to more than pay the whole cost the first year.

This last mode of preparing low lands is new, and has formerly been considered to be impracticable, as there would not be silica or sand enough in the soil to sustain the stock of grain or grass; but Mr. Clement's success proves it not only practicable, but one of the best ways of improving such soils. It therefore must prove of much advantage to those who have this kind of ground to improve.

We award David Clement, of Hudson, the first premium on reclaimed bogs, $4 00

Mr. Clement's Statement.

Hudson, Oct. 28, 1854.

Mr. Sanderson—*Dear Sir:* I suppose you are expecting a line from me about this time, therefore I write a few statements respecting my bog meadow.

First, I dug a good ditch around the piece I wished to reclaim, 4 feet wide at the top, and 2 at the bottom, and deep enough to have the water 2 1-2 or 3 feet from the surface of the meadow. I have something like 6 acres which I have reclaimed, and have experimented three ways; first I covered 1-2 acre with loam and gravel, which made the meadow grass grow as fast as the English. I then turned over 1 acre with bog hoes, after cutting it with a cheese knife in strips 1 foot wide, and the next winter carted on some manure and compost, and sowed it the fol-

lowing spring with oats, clover, and herds-grass, which did very well for two or three years; but the meadow grass has since come up through the furrows so that the hay is of poor quality, and I have come to the conclusion that my third method is the best, which is to cut it in pieces one foot square and pull them up with a manure hook and set them upon the edge, and when they get dry, burn them up, and then spread one half of the ashes (and carry the rest off and put them with meadow muck and make compost) and in this way I kill all the grass and roots at once, and then my bog is ready to put on what crop I like.

One year ago this month, I sowed a small piece of winter wheat, and another of winter rye and grass seed at the same time. The rye and wheat did well, and the grass looks well now.

I also had a very good piece of corn the present season, and something like 500 bushels of good potatoes, an abundance of cabbage, flat and sweet turnips, squashes, cucumbers, and rhubarb—all this from my third mode of experimenting, and without one particle of manure, (except a little guano in the hills of corn, which I think did no good) except the ashes, which I think are good, far better than guano.

Yours with respect,

DAVID CLEMENT.

The field crops raised during the past season were so much injured by the drouth that but few were entered for premium, and your committee received no return of the manner and cost of culture on a part of those that were

proposed in the first part of the season, therefore we received but two entries and returns on corn, one each on wheat, carrots, and potatoes. These, in a good year for such crops would not be considered a large yield, but for the past season we think they are entitled to premiums.—We award to

Mary S. Farley, of Hollis, the first premium on corn.

To Charles H. Campbell, of Amherst, the second premium on corn.

To R. E. Dewey, of Nashua, the first premium on wheat.

To Joseph Underwood, of Mont Vernon, the first premium on potatoes.

To John Bruce, of Mont Vernon, the first premium on carrots.

STATEMENTS.

To the Committee on Field Crops, *Gentlemen:* The crop of corn I entered for premium grew on land that had been down to grass for eleven years—was plowed in October, 1853, about 8 inches deep; the May following I harrowed it and furrowed both ways about 3 1-2 feet apart. The soil a slaty loam. Manured in the hill with 14 loads compost manure, made by three shoats, in four months.—Planted May 19th and 20th, hoed twice, June 13th and 14th, and 29th and 30th,—stalks cut the first of September,—harvested in October, and yielded 104 baskets, which, when shelled, produced 18 quarts per basket, being 58 bushels and 16 quarts per acre. The following is the expense of cultivation:

DR.

To plowing,	$5 00	
" harrowing and furrowing,	3 00	
" manure,	14 00	
" planting,	4 00	
" hoeing twice,	8 00	
" harvesting,	8 00	
" interest on land,	6 00	
" seed corn,	25	
		$48 25

CR.

By 58 1-2 bushels corn,	$58 50	
" stalks and husks,	10 00	
		$68 50
Deduct expense,		48 25
Net profit,		$20 25

THOMAS PROCTOR, JR.,
for MARY S. FARLEY.

I hereby certify, that I assisted in planting and measuring the ground, and crop, and know the above statements to be true.

MARK J. AUSTIN.

Hollis, Dec. 5, 1854.

TO THE COMMITTEE ON FIELD CROPS, *Gentlemen:* The crop of corn which I enter for a premium grew on 1 acre of land. The land was plowed in September, 1852, about 7 inches deep—harrowed the succeeding spring and planted with potatoes. All the manure that was applied was a

shovelful of compost to the hill. The crop was about an average one. The latter part of May, 1854, I carted on 24 cart loads of manure made by the stock, the previous winter, spread and incorporated it with the soil by use of the plow, running it about the same depth it was plowed when first turned over. Furrowed but one way, as near 4 feet distant as we could judge. Made the hills 3 feet apart—allowed four stalks to stand in the hill. Applied half a shovelful of compost manure to the hill, making 8 loads of compost that was used, made in the yard the previous summer. The corn was planted the last week in May with an eight rowed variety, (ears long and cob small) hoed the first time about the middle of June, again the first week in July. The latter part of August went through with the hoe, destroying the scattering weeds but not disturbing the soil. A heavy crop of stalks was taken off in September. The corn was harvested about the middle of October, yielding 77 baskets of ears, producing 62 bushels and 18 quarts of shelled corn.

The soil was cold and heavy, and a portion of the field had not been plowed for many years, it being considered too wet and heavy for cultivation. I laid an under drain in the lowest part of the field, in order to carry off the water from the cold springs with which the soil was so much infested.

It was not my intention to enter the crop for a premium until a short time previous to harvesting, consequently I kept no account of the expense of cultivation, but would merely add that the expense would not exceed that of acres of corn in general in this county. The stover more than paid the expense of harvesting and interest on the land. The expense of draining I should make no account of, in the corn crop, as that expense will be more than doubly paid in the subsequent crops of grass.

Respectfully yours,

CHAS. H. CAMPBELL.

Amherst, Nov. 13, 1854.

I hereby certify that I assisted in raising and harvesting the above mentioned crop, also in measuring the land and crop of corn, and know the above statements to be true.

ALFRED KEBSO.

WHEAT CROP RAISED BY R. E. DEWEY, OF NASHUA, 1854.

Land—1 1-8 acres of Nashua river intervale, a sandy loam, on which rye had been often raised down to 1850, but which, until the present year, has not been since cultivated.

Intending to seed down to grass, as a substitute for barn-yard manure, I spread 9 feet of leached ashes, and sowed 390 pounds of Peruvian guano, mixed with about as much plaster, and plowed the land from 8 to 10 inches deep.—On the 9th day of September, 1853, I sowed 1 7-8 bushels of white flint winter wheat, (which had first been soaked 12 hours in strong brine,) harrowed thoroughly, and rolled down the land smooth.

Some of the crop was winter killed, but after harvesting, between the 19th and 22d of July, and threshing the grain, I measured 19 bushels of clean wheat.

CR.

By 8 bush. selected for seed,	$24 00	
" 11 do.,	27 50	
		$51 50

DR.

To 1 7-8 bush. seed,	$4 44
" 390 lbs. guano,	11 70
" plaster, say	2 00

" 9 feet ashes,	$6 75	
" 2 3-4 days work, man,	2 30	
" 4 3-4 " horses,	3 95	
" reaping, 3 days,	3 75	
" other expenses,	1 50	
		$36 39
Net profit,		$15 11

Owing to a light shower of rain while the grain laid on the ground, I was obliged to turn the gavels once or twice, which will account for the last item in the cost of the crop.

The straw will pay for threshing and all other expenses.

R. E. DEWEY.

Nashua, Sept. 1, 1854.

To the Committee on Field Crops—*Gentlemen:* I entered 1 acre of corn, 1-4 of an acre of carrots. My corn was on land that was dry and somewhat ledgy; it appeared beautiful and promising until the drought affected it, and then I gave up the idea of a crop worthy your attention. My carrots, although not upon so dry ground, suffered materially. They were sown, the last of May, upon a hard, moist soil, after applying two or three loads of manure, and plowing about 9 inches deep, and raking the same.—The piece was smaller than I expected, as it appears to contain by measurement less than 18 square rods. It yielded me 75 bushels, and the labor bestowed was but trifling. The sowing was done with a machine. The time it took to weed them, I cannot state precisely, as it was done by jobs. They were dug in one day. If the same is worthy of your notice, and can consistently claim your con-

sideration, you may dispose of it as you think proper. Capt. Kittredge requested me to forward it to you.

Very respectfully yours,

JOHN BRUCE.

Mont Vernon, Jan. 1, 1855.

To the Committee on Field Crops—*Gentlemen:* I entered for premium 1-2 acre of potatoes. The ground upon which they were raised is a bog, or swamp as we sometimes term it, about 1-4 acre of which, in the fall of 1853, was covered with small wood and bushes. I commenced clearing by cutting and pulling up root and branch, and by which method I loosened all of the ground and leveled it with a hoe, cutting for wood that which was large enough, and burned the brush off in the spring, and planted in rows of 3 or 3 1-2 feet apart, putting in the hill a very little winter manure, say one shovelful to 5 or 6 hills; the other part was cleared one year before, and the roots taken out, the surface turned over with a hoe, and leveled as the other, and planted; manured the same; all the labor done by myself without cattle, except carting a few loads of manure down to the side of the bog; from there I took it with a wheelbarrow, and applied it as before stated. The amount of labor bestowed in planting was 6 days, hoeing 3, harvesting 4,—making 13 in all. Ox work, carting manure and the value of the same I estimate at 5 dollars, and the 13 days labor at $14,62, making in all, $19,62. I received by products from 1 1-2 acre, 100 1-2 bushels which were smooth and handsome; estimating them at 55 cents per bushel, amounts to $55,27. Had not the drought affected them, I think the ground would have yielded much

more. It was so wet in the spring that I could not plant till the first of June.

JOSEPH UNDERWOOD.

Mont Vernon, Dec. 30, 1854.

Sworn and subscribed before me,

JOHN BRUCE, *Justice of Peace.*

As much of our success in farming depends on the manner of preparing the land for field crops, and to cultivate these profitably is what all wish to attain, therefore premiums are offered for the best crops with the manner and profit of cultivating them, that all may derive knowledge from their example. And we feel that it is very important that those proposing crops for premium, should be particular to keep a correct account of the method and expense of cultivating, and the amount of manure applied, with a good description of the soil, its former culture, and the amount of fertilizing put on previous to the present season. This is necessary that others may profit by their success. We all know how difficult it is to follow a theory and succeed in practice, unless we are made acquainted with the culture of the soil.

WM. P. SANDERSON,

For the Committee.

Hollis, Jan. 31, 1855.

MONTHLY MEETINGS.

The most important feature in the management of this Society, is the holding of meetings monthly, in different sections of the county, for the discussion of questions pertaining to the interests of the farmer. These meetings have

been well sustained from the commencement of the Society, and have been the means of contributing much to the agricultural improvement which has taken place within the sphere of their influence. Accompanying may be found brief reports of a few meetings which will be of value in all parts of the State.

The November meeting was held at New Boston. The subject for discussion was the cultivation of fruit, and Mr. C. H. Holt, of Lyndeboro' opened the debate.

Mr. Holt remarked, that many people contend that there is no profit in the cultivation of fruit; many of this class prove this, by their works, by the care, or rather want of care, they bestow on their trees. In conversation with a man, a few days since, he was told by him, that he raised an abundance of apples on his farm, but that he could find no profit from them, for that it took 100 barrels, to get 50 barrels suitable for the market, and, again, that it took a man a day to pick eight barrels. Mr. Holt asked him if he ever pruned his trees. "No, I let my trees take care of themselves," said he.

He would cut the dead wood, and shorten in some straggling outside limbs, to induce new wood to form. He would not plow deep about an old and neglected tree, but would cultivate and subdue the soil, with the spade, bar and pick, accompanied with a careful use of the plow; manure and get the tree into a healthy and vigorous condition, before grafting, then, with proper attention, good crops are sure.

He would choose scions for grafting from the upright shoots at the top the tree. The form of the top partakes of the habits of the scions set. The fruit was very materially affected by the nature of the stock. Winter apples set in trees that produced fruit inclined to rot early, will not keep so well as those set in trees bearing later fruit. He was satisfied of this, from many years of observation, and numerous experiments. Apples of an unsaleable qual-

ity, he was satisfied, were more valuable to feed to stock, than to make into cider at the present prices. His cows, when their allowance of apples was withheld, did not afford more than half as much milk, as when fed with them.

Apples are wholesome and nutritious, and serve to regulate the digestive organs.

Winter fruit will never be a drug in New England, in his opinion. Apples raised here will keep better than those raised in any other section of the country, and are sought for, for exportation, in preference to those raised at the South or West.

In choosing trees to set, many will choose the cheapest trees. He recommended the best trees, and those of a well balanced top. All trees should be transplanted from the nursery bed, and the tap roots cut off. When the tap root is cut off smoothly, lateral roots start out in a horizontal direction. These roots, being small and fibrous, take up nourishment, and promote the growth of the tree more than the large roots containing fewer fibres. Two months after the tree has been set out the small roots may be seen by examining. Long tap roots could do no good, in his view, unless, by running deep they take up some mineral substance, but this substance can be added to the surface, so that the roots can find it.

In setting fruit trees, he would dig large holes, four or five feet across, and one or two feet deep. He always had in readiness a compost for setting out trees, composed of rotten turf, meadow mud, decayed vegetation, of almost any kind, yard manure, wood ashes, bone dust, &c. This, or something resembling it, should be at hand, whenever trees are to be set, and more especially if the soil is not by nature or cultivation in a rich, mellow condition. Trees should be set about as deep as they stood in the nursery. Should be taken up with care, so as not to break the roots. All bruised roots should be cut off smoothly on the under side. Some trees requre staking to protect them from the

effects of the wind, but well chosen trees require no such help.

He seldom watered a tree, but mulched it thoroughly with litter or leaves, and if he watered a tree at all, he would do it after he had mulched, to prevent the baking of the soil, &c.

He set trees from six to eight feet high, not more than three years from the bud, generally those of two years of age, and had good success. He would set older trees under some circumstances. Trees well taken up require but little shortening in of the top.

Pear trees require better cultivation than the apple, in order to realize our expectation. He set, Nov. 5th, fifteen pear trees, in holes five feet wide, and two feet deep. He used, to set these fifteen trees, eight loads of compost, composed of saw dust, decayed vegetation, and yard manure, and also five bushels of ashes. If he had had the materials at hand, he would have added bone dust and lime. The pear trees require lime. Pears can be raised to a profit. He related examples to the point.

He would choose ground for an orchard, and especially for a pear orchard, with a southern, a southeastern, or southwestern aspect, with a deep, loamy soil, and a dry subsoil, rather than a wet subsoil, or a northern exposure. Pear trees are subject to a disease called the frozen blight or winter killing.

The more thoroughly the wood is ripened in the fall, the less liability there is to the disease. Trees set on a dry subsoil will ripen earlier than otherwise. Should a tree become winter killed, the wood, on being cut, will appear of a dark color; cut it down to where the wood and inside bark look natural; do it early in the spring Manure pear trees in fall or early spring.

Grapes of any variety can be produced in the greatest abundance, with the least expense of any kind of fruit. A wall is the best trellis. Mr. Holt said he had been suc-

cessful with the Catawba and Isabella—was not much acquainted with the Diana, but the fact of its being two weeks earlier than the Isabella, and more than that much earlier than the Catawba, would make it *the grape* of this latitude.

Specimens of the Diana were exhibited by Mr. Manning, of Bedford, also specimens of Catawba by Mr. Perham, of Lyndeboro', in a good state of preservation.

There were native grapes now known to some sections, worthy of extensive cultivation. Native grapes are generally ripe from the 1st to the 20th of September, whereas the Isabella and Catawba do not often ripen until October 1st to 15th, and frequently not all. Location and cultivation, with proper pruning, was the great secret in grape raising.

Wine can be made from almost any grape, and is wholesome as a beverage, and does not induce intemperance, so much as many suppose.

Mr. Holt showed how a tree could be saved when girdled by mice or rabbits. Bank up with earth, or some other materials, as soon as discovered, then, when the sap flows, so that the bark peels well, take a limb about the size of the tree where it is girdled, cut above and below where it is eaten, and take off a little bark so as to make it a good fit, then take off a ring of bark from the limb of corresponding size, and place and fit it nicely around the girdled place, and cover it with clay.

Mr. Holt's remarks upon manuring orchards, were such as none can question; "as well expect a good crop of corn for a succession of years without manure," said he, "as a good crop of apples, without the same."

Pear trees should be pruned early in the spring, rather than in midsummer. If pruned in summer, the tree would grow late and not ripen its wood so well, consequently be more liable to the frozen sap blight.

Cherries he would prune in midsummer. Plums and peaches he would prune at the end of the limbs, rather

than to cut limbs at the trunk of the tree, there being less liability of the gum oozing out by heading in.

Mr. Holbrook, of Bedford, spoke, and generally agreed with Mr. Holt's views.

He would prune trees from their youth up; use nothing but the jack knife or fine saw, cut only small limbs, so that no large wounds would be made; "as well let a child grow up to manhood without education, as a tree without shaping with the pruning tools."

A tree well pruned will admit of its fruit being gathered with greater despatch and in better order. Marketmen can dispose of early and fall fruit to advantage, but farmers generally, at a distance from market, will do better to raise winter fruit.

He was satisfied that apples were good for stock. He had tested them to fatten a pair of oxen, giving them half a bushel each, morning and night, with hay. The result was beyond his expectations; they fattened well, and at less expense than usual.

Grapes, pears, peaches, and plums, he did not cultivate to much extent. The Baldwin was his principal fruit.

Mr. Perham, of Lyndeboro', was satisfied that the stock had great effect upon the fruit. An August Sweeting, or a Sweet Bough, grafted into a late keeping winter apple tree, would frequently remain on the tree two months later than those grafted on trees whose fruit ripened early. He thought fruit could be prolonged beyond its usual season, or ripened early by this mode of grafting.

Mr. Holbrook would graft early in the season, rather than late.

Mr. Melendy, of Amherst, thought the price of fruit would not be less than at present, but would always pay as well in the future, especially as there was a call for apples to ship to foreign countries, from the noted fact that apples raised and put up in this section, keep so much better than those grown at the west and farther south.

Hillsborough county could not be beat in growing good apples. Land in fruit trees paid 5 per cent. more for that reason than if there were no trees.

He would not prune suckers from newly grafted trees till the second year, and then with discretion, frequently leaving suckers on the limbs below feeble grafts, to assist in drawing up sap, also to shade the limbs and body of the tree.

Pruning, said he, is more of a science than grafting. He was of the opinion that the stock did not affect the quality of the fruit so much as many supposed. He thought it had a discouraging effect upon those disposed to graft. He thought that location and cultivation had more to do with it than the quality of the stock.

Mr. Holt said he he was formerly prejudiced against agricultural societies, papers and books, but had changed his sentiments, and the result had been, he had improved his farm and garden, nursery, stock, &c., by the information he had obtained through such means, but first and most of all, he had improved his mind.

Mr. Cleaves, of Mont Vernon, desired to know if apple trees, inclined to bear every other year, could be made to bear *every* year.

Mr. Holt thought that something could be done by high manuring and the addition of lime. He had caused some of his Baldwin trees to bear in this way every year.

Mr. Holt's remedy for the borer, was to use a wire to run into its hole; if he could not kill it in this way, he sometimes put into the hole a small piece of gum camphor, and plugged it up.

Specimens of seedling apples were exhibited. Mr. Holt showed an apple that he called the Batchelder apple, which originated on his farm. A beautiful apple. It will keep most of the winter. Resembles the Hubbardston Nonesuch in flavor. Several gentlemen tasted the apple, and pronounced it superior.

Mr. Perham showed a winter sweet apple, called the John Sweeting. It will keep till May or June with care, and retains its flavor and firmness to the last. A superior apple for baking. In shape the apple resembles the Porter. The color is mostly red, with yellowish green ground, small core, short stem, a very rich sweet, flesh white. The apple will be appreciated when it has been introduced more extensively. No one can be disappointed by getting trees or scions of this fruit.

Mr. Holt was requested at a former meeting to make out a list of fruits adapted to this latitude. He reported the following list, which he has thoroughly tested:

PEACHES.

Early Washington,
Tetondevenus,
Vanzandt's Superb,
Premium,
Crawford's Late,
Lemon Rareripe,
Cooledge's Favorite,
Crawford's Early,
Lancaster Melonton.

PEARS.

Bartlett,
Flemish Beauty,
Seckel,
Louise Bonne de Jersey,
St. Ghislain,
Blood Good,
Andrews.

Plums.

Early Blue,
Cloth of Gold,
Imperial Gage,
Green Gage,
Early Yellow Gage,
White Gage.

Apples.

Baldwin,
Rhode-Island Greening,
Roxbury Russeting,
Swaar,
John Sweeting,
Batchelder,
Spitzbergen,
President.
Steele,
Mass. Codling,
William's Favorite,
Danvers Winter Sweet,
River,
Fameuse,
Early Sweet Bough.
Golden Russet,
Gravenstein,
Foundling,
Golden Ball,
Juneating,
Porter,
French Pippin,
English Sweet.

The December meeting was held at New Ipswich. The subjects for discussion were, in the morning, the use of guano and the improved superphosphate of lime, and in the afternoon, the rearing and management of live stock. On the first question Mr. Shattuck, the President of the Society, spoke at some length.

Mr. Shattuck recommended its use for the growth of cabbages, especially, believing it particularly valuable for that vegetable. He has found it useful in the growth of onions and carrots. Its price is $50 per ton. The comparative expense of applying it, is a matter of great importance to the farmer. A farmer of his acquaintance, who has been in the habit of purchasing large quantities of manure in Manchester, estimates its cost at $6 per cord on the field—$4 or $4,50 per cord at Manchester. In the application of guano or superphosphate, the farmer takes his measure and spreads it over the field. Mr. Shattuck urged the collection of every kind of manure about the farm.—It is of the greatest importance to do so.

But the application of concentrated manures was very valuable for raising early vegetables. It is in a soluble state and is readily taken up by the plants. Guano is very valuable for the purpose of raising early vegetables. Its power is almost beyond belief. Mr. Shattuck has been in the practice of raising cucumbers for the market. One year he lost his early plants twice by insects. In three or four days after planting the third time, they were up an inch or more.—Those planted on guano produced cucumbers as soon as those planted three or four weeks earlier without manure. Mr. Shattuck mixes the guano with plaster. Its ammonia escapes very fast and the plaster seems to retain it. He uses about a quarter as much plaster as guano. But the mixing of guano, plaster and lime together was less valuable than when the lime was applied after the others were sown.

Mr. Shattuck had a field of poor silicious soil which he

plowed, and planted, dropping about half a gill of guano and plaster in the hill and covered with soil and planted with potatoes, and had a good crop. In some parts of the field twelve hills gave a bushel. His net profit on the field was very satisfactory. The next year he planted the field and extended the planting into another portion of adjacent land that had received two applications of barn manure.—Where the guano was applied, the roots of the bean plants extended in some instances 6 feet, while on that portion manured with barn manure the roots were confined to the hills. The beans were better on the new ground than where the barn manure was placed.

Mr. Shattuck was fully satisfied that its beneficial effects were not confined to the first year. He recommends plowing in the guano. He stated the experiment of an acquaintance who had taken good crops of grass for 4 years after guano. It is of great importance to the farmer to be sure that its value is not confined to the first year—still if it will pay for itself the first year its use is desirable.

Mr. Kimball, of Temple, remarked that as far as his experience extended, his views corresponded with those of the President. Last year he applied guano and superphosphate to different parts of a wheat field. Where the guano was applied the wheat was the largest, but the clover was best where the superphosphate was applied. Mr. Kimball thinks it does not expend itself the first year. He has no doubt an early crop can be brought forward much sooner than by the application of barn manure.

Some kinds of barn manures are much better than others for an early crop. The small expense of applying guano is very much in its favor. He did not know which was best, to sow broadcast, for corn, or to put it in the hill.

Mr. Shattuck believed an advantage was obtained by extending the *roots* of plants, although some of the aliment

was obtained from the atmosphere—yet the more extended the roots, the more mouths there are to take up food.

Mr. Wm. Prichard has used guano for potatoes and had good success. Potatoes were better than when barn manure was used. Applied it to moist ground on grass with good success, increasing the crop and bringing it forward much earlier. He tried it on dry land without any apparent effect. When he applied it on moist ground, in every instance good effects were seen.

Mr. Shattuck applied it to grass in several instances without any benefit. Dr. Woodbury, of Bedford, applied a bag from the same lot, to grass land with good results—and such was also the experience of Mr. Adams, editor of the Farmer, in its application to grass.

Mr. Prichard spread a *bag* after he had used all he could get out of it, on grass. In three weeks the shape of the bag could be seen by the increased crop, and, at cutting, it was lodged where the bag was spread—though not large about it.

Mr. Shattuck recommends great care in selecting the guano, as there is a great difference in the quality.

Mr. Hardy, of New Ipswich, has used it the last year with oats, wheat, potatoes and southern corn with good results. In using it with common corn he found no benefit. It had a good effect spread on grass—could see where it was spread in one week. Last year in Antrim it was of great benefit to the corn fields.

In the afternoon the subject of breeding live stock was introduced. J. M. Tyler, of Pelham, having been appointed to open the debate, presented the following suggestions:

The breeding and rearing of stock at the present day is a subject of vital importance to the farmer, and the various breeds of cattle introduced into our country within the past few years, render it a matter requiring much study and sound judgment to select the breeds best adapted to our climate and use.

The Devons are a beautifully colored cattle, well proportioned but of small size. The cows are said to give a reasonable quantity of milk, rich in quality, when fed on the fine pastures of North Devon. The oxen are of small size almost invariably, but handsome, of good disposition, good workers and fatten easily on a small quantity of feed. For the north part of our State they are, no doubt, a good breed to raise, but for the south part I think some other breed better, especially when the selling of milk is taken into consideration. Mr. Buckminister has told us of some cows in his possession giving great quantities of milk. I think they must be exceptions, if we may rely on the history of the breed.

The Ayrshires are considered the most valuable in Scotland for milk, but not for fattening. They are rather small, but, so far as they have come under my observation, I think the cows have the appearance of being great milkers.—Their heads are lean, eyes well apart, full and pleasant, but smart and lively; horns rather small, slender neck, broad across the kidneys, small tail, a large crooked milk vein, teats rather small, pointing outwards, and udder well quartered, which may, perhaps, be considered signs of good milkers in any breed. The Hon. Peter Lawson, of Dracut, has kept an Ayrshire bull from the stock of the Massachusetts Agricultural Society, which has been of much benefit to the neighborhood. The cross with the natives better adapts them to our climate and improves the size of the teats.—They are most assuredly a good cross so far as milk is concerned.

The Durhams are considered in New York the best for fattening. I have seen good looking oxen and cows of this breed, but have very little knowledge of them.

The native breed, when bred as they should be, I think the best adapted to our New England, taking all things into consideration. Let there be as much pains taken in the selection of bulls and cows, from superior natives, as there

has been in imported breeds, and I believe England would soon be sending here for some of our fancy cattle. Who ever saw more beautiful oxen than were exhibited at our State Fair last fall, of the native breed? I am aware that there are many who go in for imported breeds almost entirely. Now, it appears to me that if they would take some of their good bread and butter which they have been in the habit of taking from their own mouths and giving to their imported fancies, and give to some of the natives, they would soon be troubled to tell which descended from "John Bull's stock."

I think it is as important that bulls should be selected from good milkers, in order to produce good milkers, as cows.

There are various opinions in regard to tending calves the first season; some would let them run with the cow during the summer, which is expensive, as the use of the cow is lost. I think it a better way to let them take a portion of the milk from the cow for 8 or 10 weeks, and then give them a good pasture with a little meal daily, 1-3 corn, and 2-3 oats, finely ground, until they are fairly weaned, which produces a more hardy animal than the mode first mentioned. There is more depending on the manner of feeding the first winter, than at any other period of rearing. Particular pains should be taken to give calves a warm place and a change of fodder with roots of some kind occasionally, so that the bright and thrifty appearance which they bring to the barn in the fall may not be lost during the winter.

Heifers raised and tended as above described will be sufficiently large to come in at two years old. I should prefer not to have them come in till June, as they are less liable to a disease of the udder in warm weather, and I should keep the calf till four weeks old, as it improves the size of the teats and udder.

It is doubted by some whether they get pay for giving grain to milch cows in winter and spring; experience has

taught me that grain grown in a proper manner is profitable both because it increases the quantity of milk and as a saving of hay.

We cut a poor quality of hay and give shorts, four quarts to each cow daily, with some cob meal, mixing 10 or 12 hours before feeding, where it will not freeze, with a table spoonful of salt, once a day; this last I should not practice for fattening cattle, as I think grain perfectly raw will lay on more fat than when cooked or soaked. People having a great quantity of poor hay, it appears to me, would find it profitable to cut their hay and use one or two quarts of cob meal a day (finely ground always) to each creature.

The meal would cost, using two quarts per day, about $1,25 per month each, and the hay would be eaten all up clean. Now, taking into consideration the wasting of the poor hay and the saving of English, is it not a safe calculation? The sleek appearance of the cattle will pay for all trouble. I would not be understood, that I would not use any good hay, while giving the chop feed, for I consider a change of feed very necessary.

The manner of feeding which we practice is to give no more at a time than will be eaten up clean, always keeping them eating until they have got enough, then let them lie down until the next regular time for feeding. Keep them in the barn all the time during the winter, with the exception of turning them out twice a day to water. We never go out in the evening to feed because we think the more quiet they are kept, the less feed they require. Working oxen, of course, are an exception when they come in late in the evening.

Kindness has as much to do with the rearing and tending of stock, as, all other things considered, the man who allows himself to be abusive, when one of his cattle accidentally steps on his toes or kicks him, is not very apt to be at peace with his neighbors, because, when he sells them a cow, she is pretty sure to kick them, and if a pair of oxen,

they will most certainly run away, and ten chances to one if their ribs are not about as distinctly visible as their horns.

Some have advanced the idea that cows that come in in the fall will give more milk during the season than those that come in in the spring. I think it depends altogether on the manner of feeding. The cow that comes in in the spring is generally neglected in August and September when pastures often dry up, while the cows that calve in the fall are fed on meal and chop feed during winter and then turned to pasture, which carries them through.

We plant fodder corn the 10th of June and the 1st of July, for our cows in the months of August, September, and the best part of October, and I think the increase of milk pays the trouble.

When we give roots we cut them very fine and give them part before or after milking, so that the milk may not taste. We think we get more milk from English turnips or sugar beets than from any other kind of roots. We use salt freely when using roots.

Mr. Isaac Kimball, of Temple, remarked that the subject was one of great importance, and a great diversity of opinion existed as to the best mode of management. To give a calf the entire milk of a cow for three or six months was very expensive. He thought stock of a good quality might be raised much cheaper, and with a greater ultimate profit.

Some years since he purchased (with others) two small calves that were hardly deemed worth wintering, which proved valuable animals. He believed it would be cheaper to use skimmed milk, and a mixture of rye and corn meal instead of new milk. Good after-keeping and careful attention would make good animals. A change of food is deemed important, and a mixture of good and poor hay prepared by a cutting machine was profitable. Give cattle no more hay at a time than would be eaten up clean. Un-

cut hay is more liable to be wasted or drawn away by cattle that are tied near each other than that which is cut.—He thought some meadow hay for cows was useful, and even better than all good hay.

He has his cows come in, some at two years old, and some at three years old—good heifers he would prefer to have calves at two years old. Thinks it injurious to cows to have the calves run with them for three months or more.

He sells milk for the Boston market—doubts whether he gets enough more milk to *pay* the extra expense of giving oil meal or grain. Gives cows that are to be fatted the next season some meal, cob-meal, and carrots and apples cooked. Thinks oil meal will produce most milk.

Mr. Caleb Campbell has reared calves, letting them suck four weeks, then learn them to drink milk, and soon give them skimmed milk and meal, and give them that till 12 or 16 weeks old. Let them have calves at two years old.—Thinks it better to let good heifers come in at two. Finds it more profitable to make butter than to sell milk.

Mr. M. S. Wilson, of New Ipswich, raises milk for the market. Thinks it best to keep cows well—and that cows having calves in the fall will give more gallons of milk in the year than cows having calves in the spring. The reason, he believes, is that they are usually kept better in the winter, and when the grass starts in the spring, the quantity increases rather than diminishes.

Mr. Stanley thinks green corn increases the milk, and nine cows gave one can of milk a day more, after giving them green corn.

Dr. T. H. Cochran, of New Ipswich, remarked that he believed it profitable to let a calf suck the cow four weeks at least, it would be better for the cow as well as the calf. If the calf is taken off before, the cow will be more liable to diseases of the udder. Would feed a calf well—it will not take more than it wants if fed regularly. A calf that

is well fed will not be so liable to disease as one that is ill fed. Thinks cows should have a regular feed and not sometimes better than at other times.

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The January meeting was held at Milford. H. A. Daniels, Esq., of Milford, opened the discussion, the subject for consideration being the Cereal Grains. Mr. Daniels remarked that he approached the subject of cereal grains deeply impressed with their vast importance, inasmuch as they furnished the great majority of the food of all civilized nations, as well as quite a portion of that of domestic animals. In proof of their immense importance, he stated that, from the published returns of the last United States Census, taken in 1850, we learned that the following almost incredible amounts of grain were raised that year in the country at large, viz:

Wheat,	100,000,000	of bushels.
Rye,	14,000,000	"
Oats,	146,000,000	"
Indian corn,	592,000,000	"
Barley,	5,000,000	"
Buckwheat,	8,000,000	"
Total,	865,000,000	"

From these astonishing results we could easily understand the effects of a severe drought in four or five of our large States, so lessening the quantity last year as to enhance the price of Indian corn at least 25 per cent., and wheat to a much greater degree. That this result showed us the further importance of endeavors to increase the quantity by endeavors to guard against the effects of droughts. To do this, or to raise any quantity successfully, something should be known of the constituents of

grain. That probably it was well known to those present, that all grains, but more especially, *wheat*, contained quite a portion of phosphate of lime, and also large quantities of silica or sand, in a finely decomposed state, and that their presence in soils was essential, hence, that there were found in the most fertile grain growing soils, more than eighty parts of pure sand or silica, and that the difference between that soil and our most sterile sandy plains was, that the latter contained less than one tenth additional sand. That from this it was evident that sand, in a finely decomposed state, performed quite an important part in the work of building up plants, forming quite a portion of the stalk of wheat, corn and rye, and entering more into the glazing of the kernels of grain. That lime also, in some of its forms, was an important aid in raising grains in our worn out soils at the East; hence, that our old pastures were not so productive of grains as our newly cleared wood lands, the latter containing more lime and other minerals. That the fertility of the New York wheat and corn lands, as well as those of States still farther west, might be due in some measure to the fineness of their parts, as well as to the presence of lime and vegetable matter; that those who had travelled in the first mentioned State, must have noticed the very fine consistence of the soil, which, in dry weather, as dust, would insinuate itself through the very smallest crack, but which, on the other hand, when not, made the most slippery walking imaginable. That these soils might have been produced from high lands of different geological construction from those of New England, and might have been deposited by water in some early age. That with the prairie lands farther west, the silica of the soil must be in a finely pulverized state, from the operation of growth and decay of the prairie grasses for ages, and that hence, with the vegetable matters, could raise up large stalks of corn, from ten to twelve feet in height. That from these considerations, should we not

take especial pains to pulverize our coarse soils, the product of our granite hills and mountains, not only to insure our crops against drought, but to bring the silica of the soil in contact with light, heat and moisture, that their decomposition may be hastened, and thus enable the plants to absorb more readily, and appropriate them to use?

In looking over the list of grains raised, we could perceive the vast preponderance of Indian corn over all others, being in amount of bushels, more than all others added together, and nearly six times more than the crop of wheat, which we have been in the habit of considering *the* great crop of the country. That hence, in our own New England, we must place our chief dependence upon Indian corn for our main grain crop, although, if farmers persisted in making use of so much wheat flour, it will be praiseworthy in them to raise a portion of wheat. That from this consideration, it would seem to be the most profitable to dwell mostly upon the culture of corn. That it was evident from the foregoing considerations, that it was of the first importance to *plow deep for corn*, that the fine silica which had gradually washed down in the soil, with certain acids always existing in the subsoil, should be raised to the surface to be changed by the chemical effects of frosts and rain, and made available to the growing plants. That the effect of wood ashes and plaster put in the hill, all knew was good, and might be owing to the chemical change they effected in the silica of the soil, doing with sand on a small scale, what the glass manufacturer, with his potash, salt and heat, does on a large scale—turn it into a transparent fluid, which might be absorbed by the roots of growing corn. That of the after culture of corn there were various opinions; that some would hoe twice, and some three times; but if the arguments adduced had any force, it was certain that often stirring the ground had a favorable effect, *especially in dry weather*, enabling the soil to absorb more of the dews at night, and to admit

the heat and air more readily, to say nothing of destroying weeds, those pests of the farmer, which robbed his growing crop of much more food than he was usually aware of.

Mr. Ramsdell, of Milford, enquired of Mr. Daniels why the main oats, so called, will lodge, while the branch oats, on the same kind of land, and under similar cultivation, would remain upright. On their Milford intervales, they had generally abandoned the cultivation of the main oats, chiefly on account of their liability to lodge before ripened, and thus becoming worthless. He would prefer them, if he could raise them, as they are so much heavier. Sow them with the branch oats, and in ten years time the branch oats will totally eradicate them. He was not fully satisfied with the theory of Mr. Daniels, however ingenious and plausible it appeared. He did not doubt that silica entered largely into the composition of plants, but thought their lodging might be attributed to some other cause than a deficiency of it in the stalk.

Mr. Howard of Temple, said he had raised corn in a bog meadow—the soil was a vegetable deposit, principally. A part he planted without manure of any kind, and to another part he applied lime, which appeared to greatly increase its growth and strength to resist winds, &c. The corn would stand on this land, while oats would lodge, and he would like to know the reason why it should be so. He gave an account of an experiment of his in raising oats. He had a piece of land exhausted by about thirty years cropping so that it was worn out. A year ago last spring he plowed one acre of it, and spread on some compost, well pulverized with one hundred pounds of superphosphate of lime, and planted with corn, and had a good crop. Last spring he sowed it down to grass with oats, and had thirty-six bushels of oats and $5 worth of straw sold. The superphosphate cost $3. He thought that corn would lodge as well as oats if sown as thickly. Mr. H. spoke of the

corn crop as the most deserving of the attention of the New England farmers.

Mr. Rossiter, of Milford, said he thought oats were generally sown too thick. This, in his opinion, was a great cause of their falling down. A bushel and a half of oats, with four or five quarts of spring rye, is seed enough for an acre. He has raised sixty bushels to the acre with that quantity of seed. He also considered the corn crop as one more profitable to our farmers than any other.

Mr. Ramsdell considered the prominence given to the corn crop, by the different speakers, as well merited. He wanted to hear from the gentlemen their methods of producing it. He wanted details as to the kinds and quality of soils, depth of plowing, what kinds, and how much manure, and how applied, and all the details of culture given. He proposed to make the cultivation of Indian corn, then, as the principal topic of discussion for the remainder of the meeting. The proposition was accepted.

Mr. T. G. Holbrook, of Bedford, thought corn to be far the most important grain crop for the farmers of this section of the country. Farmers should pay particular attention to its production, although in these times, the raising of some wheat is advisable. To be successful in raising corn, good land and a good quantity of manure are absolutely essential. As a general thing, the greater the quantity of manure we have, the greater depth we may plow for corn. The more land is plowed and stirred, the greater is the probability of a good crop of corn. If we would instruct others in raising corn, we should take into consideration the kind of soil, and its condition, depth of plowing, and at what season of the year, the quantity and quality of manure used, and how applied, the manner of cultivation, &c.

Mr. Ramsdell gave rather a humorous account of the manner he might possibly pursue in the cultivation of corn the coming season. His mode was decidedly of an *aboriginal* character.

Mr. Cutter, of Pelham, supposed that Mr. Ramsdell made the remarks that he did, to draw others out. He would get a good plow of the modern patterns, and plow eight or ten inches deep; if the land is light and dry, he would spread his manure before plowing; on stiff, heavy land, he would harrow in manure after plowing. He would, after the land was well prepared, furrow it about three and a half feet apart, and plant in drills, having the seed well scattered in the drills. He would use some highly concentrated manures, such as plaster, guano, or home-made guano, in each hill. He would keep the weeds down, as they occasion great loss to the crop, if permitted to grow, by the use of the cultivator. Prefers the drill system of cultivation for corn, as it produces more corn and more fodder to an acre than otherwise. The fodder on a well cultivated acre of corn is worth about as much as an average acre of English grass. He would drop the kernels 8 inches apart in drills, 3 1-2 feet apart.

Mr. Howard would not plow for corn until as short a time as possible previous to planting—would plow ten inches deep, and manure as follows: To five cords compost manure he would add 100 pounds each of Peruvian guano and the improved superphosphate of lime, and mix all thoroughly together. Let it lie from ten to fourteen days, and and spread it upon the ploughed surface, harrow it in well. Would plant in drills 3 1-2 feet apart, and, in the after culture, use the cultivator. He has used the corn-planter and likes it.

Mr. Cutter said he never saw a corn-planter or seed-sower, that he would use in small lots.

Mr. French, of Bedford, has used "Bachelder's Patent Corn Planter," for eight or ten years past. He thought it a great saving of labor, as it is but a little more labor to plant a piece of corn with it than it is to furrow it. The slides are so arranged that any required number of kernels will be dropped at any distance apart desired. The seed

does not all fall in the same spot, but is suitably scattered in the hill. With a good horse he can plant an acre in forty or fifty minutes. He has planted four or five acres in a day—but never had occasion to use it a whole day at a time. It costs $10.

Dr. Woodbury would not advise the use of the planter. The work can be much better done by hand. In raising corn he usually plows in the fall, preferring to have the furrows lie partially edgewise rather than flat. He then draws on what he calls his summer manure, about 25 loads to the acre. In the spring, he sows and harrows in 100 pounds of plaster and 100 pounds of Peruvian guano—then furrows it north and south—furrows about three feet apart—puts about two-thirds of a shovel-full of his summer manure in each hill, and covers about an inch in depth. He uses the cultivator generally three times. He plants a long-eared, eight-rowed corn, and usually has about sixty bushels to the acre. Some of his neighbors say more than that. We understood him to say he planted his corn in hills, about two feet apart, in the row. If we are wrong, he will please correct it.

James O. Adams, of Manchester, in answer to some objections made to the use of Dana's Corn Planter, a very cheap and simple implement, exhibited at the late State Fair—said that Mr. Dana had made an improvement in his planter, by means of which the seed would be spread about in the hill, and in any required number of kernels, which would do away with the objection raised. The implement was more substantially made than at first.

Mr. Ramsdell came out and "owned up the corn." His original, or aboriginal notions had been completely upset by what he had heard. Instead of plowing with an old fashioned wooden plow, three or four inches deep, and not very particular how that was done, and planting it without much regard to quantity of seed, or any thing else, and considering a rank growth of weeds as essential to a good

crop of corn, he should pursue some of the methods recommended by some gentlemen present, and if he did not have ten or fifteen bushels of corn more per acre by it, he should return to the old fashioned way.

The February meeting was held in Manchester. The subject for discussion was the general one of Horticulture. Mr. B. F. Cutter, of Pelham, was invited to take the lead.

Mr. Cutter commenced by giving the definition of Horticulture, as a *garden* culture, including the raising of the common garden vegetables, shrubs, herbs, vines, &c. Floriculture, or the rearing of flowers, might be considered a department of horticulture, and agriculture includes all field culture.

Taking into consideration what a source of pleasure, profit and health, a good, well ordered garden is to its possessor, there is, generally, a lamentable want of attention to this branch of human pursuits. A very small piece of ground will do for a kitchen garden. For a good garden we should have a good piece of land, combining high and low; wet, or moist, and dry; and, in fine, almost every variety of soil. After we have selected a suitable piece of ground for our garden, our next object should be to have it well fenced, for no four footed beast should ever be allowed to tread its consecrated precincts, only as we have occasion to use them in its cultivation. Then it should be well manured, and most thoroughly pulverized to a good depth. Most all kinds of manure are suitable for garden purposes, but we should recommend the use of such as are most free from the seeds of weeds, as it would save much vexatious labor in the care of it. A garden should contain all kinds of vegetables in use. Plant, in different seasons, of the same kinds of vegetables so as to have a continuance of them for daily use, as peas, beans, &c., may be

had in a green state from early summer till late in the fall. Parsnips should be sowed early. So should onions. Beets, for winter use, need not be sowed till June. A garden should contain a variety of herbs—sage, balm, camomile, hyssop, &c. He sows onions in drills from 12 to 15 inches apart. Beets, 18 inches, and 8 inches apart in the drills. He would recommend the practice of manuring in the fall. Thoroughly mix the manure with the soil, then throw into ridges, that the frost may destroy the worms. He would not recommend to farmers to raise their own garden seeds. They can buy them cheaper than they can raise them. A common farmer does not know a good beet for seed. The color of the leaves is the criterion by which to select a good beet for seed. To produce good, dark red beets, the leaves of the seed beet must be of a dark red. The earliest ripened onions, only, should be selected for seed.—Would prefer seeds raised at the north. He has great confidence in some of the Boston seed dealers, as they have their seeds raised by experienced and responsible producers. He named Parker & White, Ruggles & Co., Breck, and Hovey & Co., as reliable seed dealers. Mr. C. concluded by saying that there can be no excuse given for not knowing how to manage a garden. Agricultural papers are within the reach of every one, and they contain sufficient directions to enable any one, of common judgment, to successfully manage a good kitchen garden. He dealt out quite an amount of reprehension for neglect in this matter, upon the community generally, and quite a respectable share of it upon his own townsmen.

The President then said that the subject wore a rather forbidding aspect to people generally. But it was a subject of great importance, and it was beginning to be so understood. As to the general management of a garden, he should agree with Mr. Cutter, only he might be a little more particular in his choice of manures. He also made some remarks as to the mode of sowing seeds—whether by

hand, or seed-sowers, was the preferable practice. Sows his seeds by the use of Pratt's seed-sower. It does the work to his satisfaction. He spoke of the onion hoe, by the use of which one man is enabled to do the work of half a dozen, in the ordinary way of weeding onions, and the work is quite as well done. At the present high prices for labor, farmers must avail themselves of all the labor-saving machines that are really useful, to keep up with the times.

Mr. Ralph Holbrook, of Bedford, thought too much importance could not be attached to the garden. He had made it an object of his attention and care for many years, and had received ample compensation for his labors therein. He considered his garden a source of profit and health to himself and his family. In the general management of a garden, he approved of the mode of Mr. Cutter.

Mr. Cutter spoke of the great difficulty in preserving the purity of seeds, and of preventing different species of vegetables from mixing. This was one reason why a common farmer should not attempt to raise his own garden seeds, for by raising them all in his own garden, they will inevitably mix. Seed growers, who are honest, and understand their business, have separate lots in which to raise their seeds which are liable to amalgamate. He should save beet, parsnip and carrot seed from the center stock.

An address was delivered by Mr. Brickett, of Reed's Ferry, on the subject of the study of Agriculture in common schools, which called forth remarks from others on the same subjeet.

Mr. B. F. Wallace, of Manchester, said, that for many years he had made the subject a matter of reflection. He considered it a very important matter. He had arrived at the conclusion that some work on agriculture, horticulture, and the mechanic arts, should be prepared and introduced into our common schools. This should be in *addition* to,

not to the *exclusion* of, any of the studies now pursued, for they are all important and necessary to the training of the youthful mind. The study of Geology, Mineralogy, or Botany interests the young, and he could not see why a work on Agriculture might not be made equally interesting. The subject presented to his mind three distinct ways of accomplishment. First, as a matter of study, like geography or grammar. Second, by a reading book. Third, by the reading of some agricultural paper or periodical once or twice a week, in our schools. For the present he might prefer the last named feature. Agriculture must be raised into a profession, and this can be done only by making our youth interested in it. When this is accomplished, the work is half done.

Agricultural works have been introduced into the schools in Massachusetts and Vermont, but he was not certain that the public mind is quite prepared for the introduction of such works into the schools in this State. Mr. W. spoke of a school book—a reading book—called the Scientific Reader, which was issued a few years since. It did not succeed. It might now, as we live in a progressive age. A periodical, of an agricultural, literary character, is much needed, in his judgment. He said that some 25 years ago, he had a class of young scholars who were just able to read easy lessons; he procured for them a Boston publication, called the "Juvenile Rambler," composed of articles of a pleasing and useful character, written expressly for the young. By a weekly reading of that paper, by his little pupils, such an interest was awakened in their minds as he never saw surpassed. From that time, he, as a teacher, has pursued a similar course of instruction, and rarely fails of creating a deep interest in the minds of his scholars, on any topic he pleases, if they can have access to suitable publications. He made a powerful argument in favor of this practice, and concluded by expressing the opinion that the matter should be laid before the Board of Education.

James O. Adams, Esq., of Manchester, spoke next on the subject, to the effect, that he had always been opposed to the introduction of the study of agriculture into common schools, until, through the untiring efforts of the President of the Hillsborough Society, he had partially changed his opinion—that he now believed that reading-books containing selections from agricultural orations might be used to advantage—that though systematic and thorough instruction could not at once be given, the subject might be introduced as a sort of recreation, once a week or more, and that by all means the common school books should contain more practical matter. He referred particularly to arithmetical text books, and recommended one on the plan of Mann & Chase's new work.

Col. Glidden, of Unity, being present, was called upon by the President, for his opinion upon the subject under consideration.

He said this matter was discussed some years since, and it was then thought to be impracticable. But we live in an age of progress. Those, who some years ago stood in the front rank for improvement, on account of their notions then, would be voted "old fogies" now.

Many studies are now pursued in our schools that the law does not require. He was of the opinion that some of those studies, which were entirely useless to the young farmer, had better be omitted, and some work calculated to make him better understand his future vocation, be substituted therefor. He did not consider so great an amount of book learning so essential to any man's success, in any department of business, provided he had an observing, inquisitive mind, and good common sense. Daniel Webster was not a great scholar, but he knew how to harness a horse, and which end of a pair of steers to put a yoke upon. He acquired his greatness, more by observation and reflection, than by the study of books.

He favored the idea of making the subject of agriculture a common study in schools, in some form.

Further remarks were made by Mr. Shattuck and others, all in favor of the movement.

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The meeting in March was held at Hillsboro' Bridge. The subject for discussion was, "The preparation of the ground for planting the various kinds of hoed crops."

The discussion was opened byMr. Munroe. In his opinion, plowing, harrowing, and the application of manure, are the most important items of preparation. He considered the corn crop the most important one cultivated in this section, and urged the absolute necessity of a proper preparation of the soil for its growth. His farm is a cold, rough, hill farm, inclines to the north-east, and some parts of it are wet and springy. He has improved it very much by underdraining. He was in favor of deep plowing, at least eight or ten inches, the deeper the better, unless it was on springy ground not drained. Such land should not be plowed so deep. One object in plowing deep on dry land, is to get more moisture, and to bring the deep soil to the surface to the action of frost and air.

His method of preparation is to plow, as deep as he can, his hard, rough ground, in the month of September—cross plows in the spring and sows with oats; the second year he spreads on green manure and plows it in; when he plants, he puts compost in the hill, if the land is not too dry, made from the hog-yard, mud, ashes, &c. In this way he gets a good crop—without manure, none. The more the ground is plowed and harrowed, the better. He sows down to grass the third year.

On loamy, dry land, corn is best on broke up ground; either spread the manure on the sod and plow in, or spread on the furrow and harrow in. Different soils need differ-

ent preparations. It is useless to prepare all soils in any one particular way. If land is loamy, plant the first year and sow down the second. Mr. M. was of the opinion that the only way to make farming profitable, was by extreme manuring; he said that corn here did not average more than thirty bushels to the acre, when, by additional manure and labor, it might be increased 50 per cent. or more, and the additional expense would not be more than half the increase of crop.

With some it is a serious question how to get manure. He recommended to get mud, loam or leaves, to bed cattle with, to soak up the urine, put in the hog-pen and barn, which he thought would not cost more than $1 per load when ready for use.

Mr. M. alluded to the success of Mr. Brown, whose farm is an island in Winnepisiogee lake. He has been improving his land for twenty or twenty-five years, and some of the results of his labor were read from the Transactions of the State Agricultural Society, showing that he raised 104 bushels of corn to the acre.

Mr. M. has tried some experiments on his land with guano—sowed 100 pounds of it on one-third of an acre of wheat: the parts sowed with guano looked, when growing, much better than in the other parts of the field where it was not sowed. When harvested, there was more straw and more wheat than on one-third of an acre of the remainder of the field. Where used on potatoes, they were of the best quality, and yielded thirty-five bushels more to the acre than where it was not used. Tried it on corn—put about a table spoonful to the hill; in some put three inches dirt before dropping corn, did well; on some it came in contact with the seed and killed it; on some he put dirt an inch deep, the corn grew till the roots reached the guano, then it died. Thinks it much better for potatoes than for corn.

Mr. M. concluded by saying that the business of farming

was not considered profitable or popular. The cause was that people engaged in it did not give that attention bestowed by people in the different trades and professions upon their business. He used to farm in the old way, plow each tillage field once in ten years, and for that space of time did not manure it; the consequence was, his land was running down; but he finds it more profitable to farm in a more scientific way than in the old running down method.

When speaking of the importance of manuring bountifully, he stated that two years ago he planted a field, a strip of which through the centre, about one-third of the lot, bore but a small crop, much less than any other part of the field. In the fall he spread on and plowed in a coat of manure; in the spring, manure was spread over the whole lot, and he found when the next crop grew, that the poorest part of the field had become the best, showing the benefit of double manuring.

Mr. Munroe called upon Ira Cochran, Esq., of Antrim, to express his views upon the subject under consideration.

Mr. Cochran said he was not in the habit of plowing very deep, but plowed deeper than he used to. He considered well rotted manure best for corn. In preparing his land for corn, he spreads 20 or 25 loads of green manure to the acre, and plows it in, puts 10 or 12 loads of compost in the hill, and gets a good crop. In preparing for potatoes, if the season is wet, he thinks the crop best if manured in the hill, or if the land is wet; but if the land is dry or the season dry, it is better to spread and plow in. He usually prepares one-half his potato ground each way. Raises good potatoes on pine or any other land he has.

Benjamin Priest, Esq., of Hillsboro', was called upon.

Mr. P. said farmers do not plow so deep as they think they do. He is in favor of deep plowing, no matter how deep. He said that we do not pulverize and mix the soil and ma-

nure enough. Put on all the manure we can get and plow in deep; plow again, harrow, chain out in rows three feet apart for corn; in dressing, take it in season, when the corn is not more than two or three inches high; dress without hilling. Too much land is cultivated; two-thirds the amount of land cultivated as it should be, would yield more income than all that is now cultivated. A few years ago he bought a small piece of hard land, plowed it, run the plow beam deep, planted with corn one-sixth of an acre, and raised twelve bushels. He sowed it to grass, and has taken thirteen good crops from the land since. Mr. P. inquired the best way to apply ashes; he had practiced spreading broadcast. Manure is best spread and plowed in, should be shoveled over so as to be pulverized, and mixed readily with the soil. Ground ought not to be plowed when wet.

Mr. W. S. Taggart, of Hillsboro', plows in manure, and puts some in the hill; he prefers loam to muck to use with manure. He made use of a bag of guano last season. He turned over an acre of green sward, and planted with corn. Where the roots did not come in contact with the guano, the corn grew well, but, where the roots run into the clear guano, it destroyed it. The guano was put in the hill, a little dirt put on, and the corn dropped upon it.

Mr. Luther Flint, of Hillsboro', mixed lime and muck, put it in the hill and planted potatoes; along side were planted potatoes on strong manure, but did not yield half so well.

Mr. Francis Grimes, of Hillsboro', drawed 33 loads of muck into his barn-yard in the fall of the year; in one year after he hauled it out, and let it lie till spring, then put it on one acre of land, manured one acre along side with green manure, and one acre with dry or fall manure, and planted all with corn. There was no perceptible difference between the corn on the green and dry manure, but that on the muck was twice as large as the other. Plow as deep as you can, turn up what you will.

Mr. Tilton Symonds, of Hillsboro', plows deep to take up something new—has a place to dig muck, tried some that had been dug two years, laid it out on stubble ground in the fall, spread it on in the spring and plowed it in, planted potatoes, and had a large crop. He waits till his wet land is warm, if till June, before working it, uses in the corn hills compost made of yard scrapings, ashes, &c., or of muck and manure.

Mr. Brooks, of Henniker, used the manure of one horse and one cow, and 300 pounds of guano to two acres of land, mixed three parts loam to one of guano, put it in boxes, covered it up, and let remain till wanted; plowed the ground thoroughly, and put the guano compost in the hill, about four table-spoonfuls to the hill, hoed two or three inches of dirt on to it, then dropped the corn and potatoes. He sowed it on his garden—not one hill was lost; the crop very nice.

Mr. J. Dutton, of Hillsboro', prefers deep plowing on both wet and dry land; on wet ground, so that the water may have a chance to run off, on dry ground, so that drought will not affect it; plows his ground before it is swarded hard, breaks up with one pair of oxen, and sows with oats; in the fall spreads 30 or 40 loads of manure on the stubble, and plows it in; in the spring he plows in 10 or 20 loads of green manure, harrows and chains out for planting; thinks it a damage to corn to hill it; never plows deep on ridges, but deeper every time he plows, to turn up new dirt.

Mr. Albert Burnham, of Hillsboro,' put 15 loads of manure on a spot of light land, spread and manured in the hill, and had a less crop than where there was no manure. Spreads his manure on green sward, plows, rolls, and furrows, and manures in the hill.

Mr. George Nelson, of Hillsboro', related an experiment made by an acquaintance, on light land; one-third part clay was used, and produced a better crop than clear manure.

Old land should be plowed deep, new soil is needed. He thinks dirt two feet from the surface is equal to manure mixed with old soil; has used ashes on corn hills.

A neighbor of his mixed 25 bushels of ashes with 15 loads of manure, corn was planted on the compost; it started well, but soon as the small roots reached the compost, it killed them. The crop was 12 1-2 bushels of corn and 23 cart loads of pumpkins on the acre. The following year, the land passed into hands of B. H. Gay, Esq., who sowed wheat upon it, the straw was heavy, but the grain was light—20 bushels to the acre.

MERRIMACK.

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THE FAIR.

The Annual Exhibition was held on the 26th and 27th of September, at Fisherville. The number present exceeded that usually in attendance on such occasions.

The exhibition of live stock was very good. Vegetables, fruit, manufactured and domestic articles, and fancy fabrics, added very much to the show.

The morning was occupied by the several committees in an examination of the various departments, and at one o'clock the members of the Society sat down to an excellent dinner, provided for the occasion, by J. S. Durgin, of the Washington House. After which brief speeches were made by His Excellency Gov. Baker, James O. Adams, of Manchester, Secretary of the State Society, Messrs Fogg, Kent, and others, of Concord, Coffin, of Boston, Worth, of Fisherville, and some others, when the meeting adjourned to Graphic Hall to listen to an address, of much interest, delivered by Prof. T. R. Crosby, of Hanover.

During the day, there were various feats of strength performed by the working oxen, and of swiftness by the fast horses, and on the second day the plowing match was held, exciting great interest, after which the following premiums were announced and the meeting adjourned:

PREMIUMS AWARDED.

ON FARMS AND FIELD CROPS.

Page Twiss, Dunbarton, best farm,	$4 00
John Smith, Boscawen, best oats,	2 00

T. C. Ryder, Dunbarton, second,	$1 00
I. N. Sawyer, Salisbury, best wheat,	2 00
John Kilburn, Boscawen, second,	1 00
Garland Calef, Salisbury, best corn,	2 00
Hiram Simpson, Fisherville, second,	1 00
Garland Calef, best potatoes,	2 00
John Kilburn, second,	1 00
Benjamin Walker, Boscawen, best general crops,	3 00
Timothy C. Rolfe, Concord, second,	2 00
Isaac Danforth, Concord, best garden,	2 00
John Abbott, Concord, second,	1 00

Diploma to Isaac Clement, Concord—farm not entered in season. Diploma to Nathaniel White, Concord—his farm not having been entered in season.

WORKING OXEN.—42 pairs entered.

Charles Graham, Concord, best working oxen,	$4 00
Wm. H. Gage, Boscawen, second,	3 00
Joseph Burley, Canterbury, third,	2 00
A. Brown, Northfield, fourth,	1 00
N. H. Asylum, fifth,	Diploma.
E. F. Elliot, sixth,	Diploma.
Hiram Farnum, seventh,	Diploma.
Timothy C. Rolfe, Fisherville, best plowing with oxen,	$4 00
A. Burbank, Boscawen, second,	3 00
" " " third,	2 00
Amos Currier, Hopkinton, fourth,	1 00
B. F. Dow, Concord, fifth,	Diploma.
Timothy C. Rolfe, Fisherville, best driver,	Diploma.
Harvey Carter, Boscawen, second,	Diploma.
Abiel Rolfe, Fisherville, best plowman,	$1 00

John Carter, Boscawen, second,	Diploma.
A. Burbank, Boscawen, best plowing with horses,	$2 00

FOUR YEARS OLD STEERS.—8 pairs entered.

Benj. Farnum, Concord, best 4 years old steers,	$1 50
E. Coffin, Boscawen, second,	1 00
Wm. H. Gage, Fisherville, third,	Diploma.

THREE YEARS OLD STEERS.

Jona. C. Greenough, Canterbury, best 3 years old steers,	$1 00
W. W. Austin, Boscawen, second,	Diploma.
Thomas Eastman, Concord, best 2 years old steers,	1 00
Benjamin Farnum, Concord, second,	Diploma.
Benj. Farnum, Concord, best 1 year old steers,	1 00
" " " second,	Diploma.

HEIFERS.—10 entered.

A. G. Dow, Concord, best heifer,	$1 00
A. Burbank, Boscawen, second,	Diploma.

BULLS.—12 entered.

Wm. H. Gage, Fisherville, best bull,	$2 00
E. S. Colby, Concord, second,	1 00
Isaac Clement, Concord, third,	Diploma.

SHEEP.—11 entered.

Isaac Clement, Concord, best Saxony buck,	$2 00
H. G. Stone, Boscawen, second,	1 00
I. N. Sawyer, Salisbury, third,	Diploma.
C. Smith, Concord, best native buck,	2 00
I. N. Sawyer, Salisbury, second,	1 00
H. G. Stone, Boscawen, third,	Diploma.
C. Smith, Concord, best native ewes,	2 00

SWINE.—11 entered.

N. H. Asylum, best boar,	$2 00
Franklin Kilburn, second,	1 00
N. Rolfe, Fisherville, best sow and pigs,	2 00
Benjamin Walker, second,	1 00
E. Coffin, Boscawen, best pigs,	1 50
M. C. Foster, Canterbury, second,	1 00
George Clough, Concord, third,	Diploma.

STALLIONS.—4 entered.

I. N. Sawyer, Salisbury, best stallion,	$3 00
N. Blanchard, Canterbury, second,	2 00
Joseph Knowlton, Boscawen, third,	1 00
C. A. Gilman, Canterbury, fourth,	Diploma.

MARES AND COLTS.—8 entered.

Jacob Gordon, Henniker, best mare and colt,	$2 00
C. Graham, Concord, second,	1 00
H. Martin, jr., Concord, third,	Diploma.

COLTS UNDER FOUR YEARS.—9 entered.

David Burbank, Boscawen, best colt.	$1 00
W. Kilburn, Boscawen, second,	Diploma.

GELDINGS AND MATCHED HORSES.—4 entered.

George Clough, Concord, best gelding,	$2 00
H. Hancock, Northfield, second.	Diploma.

CHEESE.

Benjamin Walker, Boscawen, best cheese,	$2 00
John Sanborn, Boscawen, second,	1 50
David Morril, Canterbury, third,	1 00
A. Brown, Northfield, fourth,	50
Benjamin Whipple, Dunbarton, fifth,	Diploma.

BUTTER.

Benjamin Walker, Boscawen, best butter,	$2 00
D. Haywood, Concord, second,	1 50
Laban Morrill, Canterbury, third,	1 00
John Kilburn Boscawen, fourth,	50
Benjamin Whipple, Dunbarton, fifth,	Diploma.

BREAD.

N. Blanchard, Canterbury, best white bread,	$0 50
J. B. Rand, Fisherville, second,	Diploma.
J. Batchelder, Fisherville, best brown bread,	50
H. H. Gerrish, Boscawen, second,	Diploma.

FOWLS.

N. Blanchard, Canterbury, best lot geese,	$0 50
" " " best lot fowls,	50

VEGETABLES, FRUIT, &c.

N. H. Asylum, Concord, best trace corn,	Diploma.
John Abbott, Concord, best potatoes,	Diploma.
Silas Call, Boscawen, best onions,	Diploma.
Page Twiss, Dunbarton, best beets,	Diploma.
John Abbott, Concord, best carrots,	Diploma.
D. Hayward, Concord, best cranberries,	Diploma.
M. H. Bean, Fisherville, best pumpkins,	Diploma.
J. Sanders, Canterbury, best squashes,	Diploma.
Isaac Eastman, Concord, best peppers,	Diploma.
Simeon Abbott, Concord, dest variety apples,	$1 00
Page Twiss, Dunbarton, second variety,	50
Samuel Moore, Loudon, third variety,	Diploma.
H. G. Stone, Boscawen, best variety of pears,	50
E. Worth, Fisherville, best variety of grapes,	1 00

CLOTHS.

J. Patterson, Hopkinton, best cassimeres,	50
D. Coffin, Boscawen, best fulled cloth,	Diploma.
Benj. Whipple, Dunbarton, best carpeting,	Diploma.
John Sanborn, Boscawen, best blankets,	50
A. Clough, Boscawen, second best,	Diploma.

NEEDLE WORK.

Mrs. D. W. Pratt, Fisherville, ottoman cover,	Diploma.
Ellen R. Sanborn, Boscawen, second do.,	Diploma.

H. H. Gerrish, Boscawen, lamp mats,	Diploma.
Miss Abby A. Ward, Boscawen, fancy work,	Diploma.
Miss Ann Bickford, Concord, second do.,	Diploma.
Miss Ann Stone, Boscawen,	Diploma.
H. G. Stone, Boscawen, woolen socks,	Diploma.

ARTICLES OF SPECIAL IMPROVEMENT.

Fowler & Moore, Newbury, hand corn-planter,	$1 00
Cummings & Currier, North Enfield, rotary mortising machine, exhibited by A. Rolfe, Fisherville,	Diploma.
Pearsons & Ramsdell, Milford, double plow, exhibited by Simeon Abbot, Concord,	Diploma.
J. L. Robinson, Concord, lot of plows,	Diploma.
W. P. & T. H. Ford, Concord, lot of plows,	Diploma.
A. Rolfe, Fisherville, lot of doors, blinds, &c.,	Diploma.
Amsden & Merriam, Fisherville, lot of stoves,	Diploma.

MISCELLANEOUS.

Gage, Porter & Co., Fisherville, cast steel saws,	Diploma.
Liscom & Dearbon, Concord, piano,	Diploma.
Isaac Elwell, Concord, bedsteads,	Diploma.
Sylvester & Eastman, Concord, looking-glasses and picture-frames,	Diploma.
Carter & Whitford, Concord, silver ware,	Diploma.
J. B. Stanley, Concord, silver ware,	Diploma.

Miss Fanny Daggett, Fisherville, ornamented leather work,	Diploma.
Miss Amelia Worth, do.,	Diploma.
Miss Mary E. F. Brett, Fisherville, paintings,	Diploma.
N. M. Colby, Franklin, penmanship,	Diploma.
N. M. Colby, best method of teaching penmanship,	Diploma.
J. Morey, Wilmot, fur coat,	Diploma.

SPECIAL PREMIUMS.

Miss Lucy Brown, 10 years old, best specimen of needle work,	$2 00
Mrs. Edson Hill, Concord, best specimen of needle work without regard to age, counterpane,	2 00
Mrs. J. A. Colburn, Fisherville, second do., drawers,	1 00
J. Sanders, Canterbury, best lot of garden vegetables,	2 00
John Abbott, Concord, second do.,	1 00
Simeon Abbott, best essay on the use of guano,	1 00

REPORT OF THE COMMITTEE ON FARMS AND CROPS.

The Committee appointed by the Executive Board of the Merrimack County Agricultural Society, to examine crops and farms, have attended to that duty, and offer the following as their report:

The committee, consisting of E. Worth, Garland Calef, John Sawyer, John Abbott, Dana W. Pratt and John D.

Fife, met at Fisherville, Wednesday morning, Aug. 9, 1854, and decided upon their route. In consequence of the severe drought, several persons who intended to have invited the committee to their premises, had become discouraged, and made no entries. Consequently the committee found their labors were not likely to be very arduous, and they began to feel some solicitude lest they should not have a very favorable opportunity to magnify their office.

In prosecuting their proposed tour, they called upon Mr. Abiel Gerrish, North Boscawen, who has paid considerable attention to raising fruit. Though not entered for premium, the committee wished to view his orchard and ascertain the result of his labors. He commenced about ten years ago to raise a nursery of apple trees from the seed. He has set above one thousand trees, over nine hundred of which are in one orchard, mostly from his nursery, and grafted into different varieties, many of which are heavily loaded with fruit the present season. Some portion of the soil on which this orchard stands is rather light and dry; and Mr. G. did not intend originally to devote it to this purpose. He has made no effort to crowd his orchard forward by extra dressing, believing a slow growth would, in the end, be more sure and durable; which is undoubtedly the correct principle. The trees were looking well, and will soon be a source of income—repaying their owner many fold for all his labor and expense. Mr. Gerrish has set a good example, which your committee believe other farmers would do well to imitate to a greater extent than has been done in this county.

The committee called next upon Mr. Joseph Smith, North Boscawen, where they arrived just after the usual dining hour. Mr. S. acted at once upon the principle that "a merciful man is merciful to his beast," in his care for their horses; and the committee proceeded to examine some of his crops, while his good lady and daughter made provision for the inner man, to which the committee were soon

called, and were furnished with the best evidence of the good house-wifery within doors. After an excellent dinner, to which ample justice was done, the examination was resumed. They saw a piece of oats, of about an acre, which was wet and late in the spring. It was plowed very deep, and then the second time, to the depth of four inches, when the manure was worked in; the straw was heavy and promised a good yield. A second piece of oats was quite heavy, which Mr. S. was harvesting. He had three acres of corn looking well; and though the soil was naturally dry, it was suffering but little; which may be attributed in part to the manner of plowing. Last fall the ground was plowed about ten inches deep, except a strip of four rows in width, which was plowed in the spring, only the usual depth. A marked difference was visible; the corn was larger, and suffered less from the drought where the ground was plowed the deepest. It was manured with from 20 to 25 loads to the acre. Appearances indicated good management.

The committee next called upon Mr. Isaac N. Sawyer, of Salisbury. He was harvesting his wheat, which was very handsome indeed. The ground was planted with corn last season, on which were put about thirty loads of dressing to the acre, composed of equal parts of muck and stable manure. One bushel and a half of the Chinese wheat was sown to the acre. It was remarkably even, and free from weeds and other grain. Mr. S. had five acres of corn which promised well. His farm is situated on a high swell; the soil is good, with stone sufficient to make all necessary fence. He showed the committee a piece of low ground which he had reclaimed by draining, clearing it of stone and bushes, which must have cost him many a day of hard labor; which, however, would not be likely to intimidate one possessing the energy of Mr. S. He is engaged also, in wool-growing; in evidence of which he exhibited 300 fleeces, taken from his flock the present season, weighing from five to eight pounds each.

On their way to West Boscawen, a piece of potatoes was examined, belonging to Mr. Garland Calef. Last year the ground was sowed with oats and dressed with about 30 loads of manure to the acre; this year about 10 loads were spread on; the vines were large. The committee have since learned the crop was very good, sixteen hills producing a bushel. The seed was cut before planting. Mr. C. had two acres of corn, manured in the hill, which hardly felt the drought, and was quite heavy.

Next, the committee called on Mr. J. L. Couch, to examine a piece of corn, of about two acres. A part of it was manured in the hill, and a part by spreading broadcast; and to a portion guano had been applied. A portion of the ground was light and dry, and the crop was suffering from the drought, which was likely to diminish what had promised a good yield.

Their next call was upon Mr. John Kilburn, of West Boscawen. They were invited to the tea-table, already spread, but to accomplish their day's work by daylight, they were obliged to decline the proffered hospitalities.—Mr. K.'s oats were harvested, but were represented as being heavy. He had two acres of the hedge-row wheat-seed, two bushels to the acre; no manure this season. It was in the sheaf and appeared very well. He had two acres of corn on good soil for the season, dressed with 30 loads of manure to the acre; part of it spread on, the remainder in the hill. Two acres of potatoes, without manure, looked promising. Mr. K. prefers as dressing for potatoes, marble dust, which is obtained in Boston. He has good land, which appears to remunerate the toil of good husbandry. He has also a cranberry meadow, which was well loaded with fruit.

Their next call was upon Mr. Benjamin Walker, of Boscawen, who exhibited two acres of sea-wheat. Sowed one bushel and a half to the acre. Last year the ground was planted, and manured with 25 loads to the acre. It was

clear of weeds and very even. Mr. W. informed the committee of a recipe to prevent smut, which he had found efficacious, viz: put two ounces of blue vitriol to two quarts of water and apply this to a bushel of wheat before sowing. He had two acres of potatoes, dressed with plaster, lime and ashes, in equal parts, and a spoonful put into a hill; they were looking well. His corn, two acres and a half, promised a good crop. A part of the piece showed the success and value of underdraining, as did some other parts of his field. Though the process may be slow and tedious, still the great improvement in smooth, productive grounds, will well repay the extra toil. His oats were very good. Mr. W. has not neglected the culture of fruit; his grafted trees are thrifty and in a bearing state. His land is good and bears the marks of good husbandry. Mrs. Walker was not forgetful to entertain the committee, if all were not strangers—they were made welcome to a well spread table, whose invitation, at a late tea-hour, was readily accepted. Having been well cared for, both man and beast, the committee left, closing their labors for the day.

Early the next morning a visit was made to the farm of Capt. Henry Rolfe & Sons, of Fisherville. They are engaged in farming, lumbering, sawing, and manufacturing doors, sashes, &c. Mr. Timothy C. Rolfe, who has charge of the farm, showed the committee three acres and a half of barley, seven acres of potatoes, and fourteen of corn. His potatoes were manured mostly with lime and ashes. A piece of carrots and turnips, on land naturally dry, was suffering from the drought; but his crops generally, being on the intervale, were not seriously affected, and promised a good harvest.

A piece of corn of an acre and a half, belonging to Capt. Hiram Simpson, of Fisherville, was next examined. It was planted nearer together than is common, and completely covered the ground. The ears were well set and gave

promise of a good crop. The manure, about twenty loads to the acre, was plowed in.

Their next visit was at Dunbarton, to which place they directed their course, amid the heat and dust of one of our sultry days of summer. In passing over the high hills of Dunbarton, they had some of the most delightful prospects of distant scenery which are to be found in this region.—At a little past noon they arrived at Mr. T. C. Ryder's, and though unexpected, they were met with a cordial welcome, which was gratefully accepted by the committee and horses. The table was soon spread and furnished, which was very gratifying to sharpened appetites. After dinner, the committee examined a piece of oats, of three and a half acres, which were of good quality and very even.—Mr. R. had one acre of corn, dressed with about 30 loads of manure to the acre, and one acre of potatoes, with no dressing, which were promising. He has a high location, based on an imperishable foundation;—the soil is good, but rocky. He has reclaimed some low land by underdraining. He finds obstacles with which to contend, unknown to those who cultivate more level and pliable lands.

The next call was at Mr. Page Twiss's. Here considerable time was spent in passing over his premises, as his farm was entered for premium. He had three acres of wheat, one and a half of oats, one of potatoes, and three and a half of corn. The latter was manured by spreading on from 25 to 30 loads per acre. He had about one acre cultivated as a garden. The onions had failed;—carrots sowed the 30th of May were looking well; turnips and beets, &c., were affected by the dry weather. Mr. T. has discovered an extensive bed of rich vegetable muck, a little distance from his barn, which, if not exactly like the diggings of California, will, no doubt, by the skill and industry of himself and his son, be converted into "piles" of gold. He had a patch of potatoes, planted the 5th of June upon this muck, with no other dressing, of very rank growth,

which the committee have since learned yielded at the rate of sixteen hills to the bushel, and which were of a fine quality.

In regard to planting large and small potatoes, Mr. T. informed the committee he had experimented with both, and found as the result that those of a small size would produce equally as well as larger ones. The testimony of others was the same. He uses plaster with good effect.—His land produces one-fourth less where it is not applied. Mr. T. keeps about twenty head of cattle, fifteen to twenty sheep, and three horses. On the side of the barn on which is the stable, he has a hanging shed, or roof projecting sufficiently to protect the manure, which is thrown out, from the sun and rain. This, if not as good, will go far in supplying the place of a barn-cellar, where that cannot well be had, and is what every farmer may have at a small expense, and which must be of very great value. Few persons are fully sensible of how much they lose annually by allowing their manure to be exposed to the sun and wet. Mr. T. composts his manure and makes about 130 cords a year.—He has given considerable attention to fruit culture—has about 200 apple trees grafted into something like 40 different varieties, some of which are of the richest quality.—He has been particular in pruning, so as to secure handsome, well formed and open tops, specimens of which evinced his skill, and were examined by the committee with great satisfaction. He finds apples to be good food for swine, as also beets, which he cultivates considerably. His farm consists of about 200 acres, about 50 of which are under improvement.

His grounds gave evidence of having been improved by hard work. The committee did not expect to find the great Chinese wall here, but they saw what might represent it in miniature—a wall some 50 rods long, 8 feet thick, and of good height, all of which was taken from a field of from four to five acres, now a beautiful piece for

tillage. The culture of grapes has been recently commenced, some fine specimens are exhibited.

The afternoon being nearly spent, the committee accepted an invitation to supper, with Mr. T. and family, and after a plentiful repast, and their horses having been well cared for, they started on their return.

Coming to West Concord, they were called to examine the garden of Mr. John Abbot, which was filled with the usual variety of vegetables, and fruit trees; it exhibited evidence of care and attention.

The committee were invited to examine the garden of Mr. Isaac Danforth, of Concord, who has purchased the residence of the late Hon. Isaac Hill, but the invitation was not received until after they had separated. It has been examined, however, by a majority of the committee. The soil is moist and in a high state of cultivation; it was well filled with vegetables, currants, fruit trees and grapes, all of which were in a flourishing state.

After the committee had closed their labors, as they supposed, they received an invitation to examine the farm of Messrs Isaac Clement and Nath'l White, situated on the road leading from the centre village, Concord, to Dunbarton. These gentlemen had intended to enter their farms, but neglected to do so in season; and though the committee had no authority to consider them as competitors, a portion of their number very cheerfully gave them a call.

Mr. Clement has about 700 acres of land, 180 of which are under improvement; some portion of this is in Bow, Pembroke and Deerfield. His homestead has been greatly improved within the last few years. About 90 acres have been brought under cultivation by Mr. C. When he commenced, it was mostly covered with a growth of young birch, &c. His method was to cut off the wood, and then plow the ground a foot deep, requiring sometimes a team of 12 or 14 oxen. Plowing that depth covered the roots

so that the harrow would work to good advantage. His land is low, composed considerably of vegetable matter, and will allow of being plowed deeper than many soils.—It is better adapted to oats, millet, potatoes, and grass, than to corn; and produces well for the present with little or no manure. Mr. C. estimates his crop of hay, the present season, at 100 tons; he has raised 200 bushels of oats, 10 tons of millet, which he finds very valuable for fodder; he has 13 acres of corn in Deerfield.

The committee passed over the Merrimack and examined a handsome intervale field, which was for many years owned and cultivated by the late Mr. Abel Hutchins & Son, and which is in a good state of cultivation. Mr. Clement's courage and perseverance in reclaiming so large a tract of nearly waste land, is worthy of commendation; while for his toil he is now reaping a generous reward. And from the sumptuous repast, to which the committee were invited, they had convicing proof that Mrs. C. possesses the essential qualities of a good house-wife, and was deserving a passing commendation.

Mr. White has about 145 acres; 40 are connected with his buildings, which make a level, handsome field. Some portions of it are of a higher soil than Mr. Clement's, and better adapted to corn. His crops appeared vigorous and promising, so far as they were to be seen. Two and a half acres of corn looked well; to a portion of it guano was applied; but probably from putting too large a quantity, about a table spoonful of guano and plaster mixed in equal parts, into a hill, and not covering it sufficiently deep, the corn was burnt in the first part of the season, which made it later. He had two and a half acres of potatoes, a part of which was dressed with manure, and a part with guano; it was impossible to discover any difference in the size or quality of the crop; the potatoes were large and produced well. He raised 175 bushels of oats, 15 of rye, and cut about 50 tons of hay. His grass was cut with a mowing

machine, which operated to good advantage, and proved to be a labor saving invention. He has constructed an excellent barn, 40 feet by 80, under which is a cellar. He uses a Michigan or double plow, which gives good satisfaction. The committee were pleased with the farm and its management.

The committee thought they would not pass the farm connected with the Asylum for the Insane, in which, with the Institution, all the committee should feel so deep an interest. They were received very cordially by the Superintendent, Dr. Tyler, who conducted them through the Halls of the Asylum, tenanted by a most unfortunate class of our fellow creatures. An air of neatness and comfort was manifest throughout. He then showed them the grounds and crops. The garden vegetables were improving by the recent rains, after the severe drought. An acre of carrots was looking well; 2000 cabbages were beginning to show their heads to good advantage, exhibiting some very fine phrenological developments. Corn was very good; a young orchard has been commenced, which is doing well. Swine of various ages appeared thrifty. The enlargement of the brick edifice, and the improvements going on, for the benefit of the unfortunate inmates, with the appearance and fertility of the soil, speak favorably of the judicious management of the Superintendent, and gave great satisfaction to the committee, and which they consider deserved an approving notice in this report.

The chairman of the committee has had the pleasure of examining the garden of His Honor Mayor Low; not, however, as having been presented for premium. It produced very fine vegetables; but the principal point of attention was the grapery. He has a rich variety of grapes, some of which are of the more tender and delicious species, which require special care and protection, and these appear to have been generously bestowed. A portion were under glass– carefully pruned and well loaded with fruit.

The committee were cordially received wherever they called; and they would take this opportunity to express their grateful acknowledgments for the kind attention and generous hospitalities bestowed upon them. They had a very pleasant tour; and there are several suggestions they would like to present, were it not for extending this report to an unreasonable length.

That agricultural labor and improvement demand more attention, is abundantly proved by the high prices of all kinds of provisions. There is too little production in our country for the great and ever increasing consumption; there are too many persons attempting to live by their wits, and not by their labor; and too much labor is employed in unproductive enterprises.

More enthusiasm should be created in behalf of agriculture, which may be said to lie at the foundation of all other professions. Let it then be the object of this Society to cherish and inspire the citizens of the county with enthusiasm—awaken a deeper interest in the cultivation of the soil—in agricultural and mechanical improvements, and domestic thrift.

Finally, it is ever becoming a christian people to acknowledge with gratitude the watchful care of a merciful Providence. God has been better to us than our fears; and, notwithstanding all our distrust and sinful murmurings, he has crowned our harvests with an abundance for man and beast. "The pastures are clothed with flocks; the valleys are covered over with corn; they shout for joy, they also sing."

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THE FAIR.

The Annual Fair was held at Lyme, a place sufficiently central, and in itself, quite convenient for the purpose, but owing to the fact that only one train of cars a day run each way, it was by no means convenient for the people to go and return the same day. This diminished somewhat the attendance, though there was present a large number who were apparently interested in the Show.

The display of fruit was especially worthy of commendation. Mr. Pinneo, of Hanover, and Mr. Mann, of Orford, contributed more than all others. There were great numbers of vegetables from the garden and field, a quantity of excellent honey, superior cheeses, and clean, sweet pots of butter.

There was a meagre show in matters of a household character, fancy and ornamental work. A few quilts and counterpanes, two or three specimens of home-made carpeting, various pictures, some embroidery, and baskets, lamp mats, and a short list of similar articles, made up the show in the Hall. Among the implements presented were the inventions of Mr. Dana, which have been noticed elsewhere in the volume.

The number of horses of all classes was about forty, of which, five pairs were matched, and made a very respectable appearance.

In the department of neat stock, there were large, well mated oxen, several young Devon bulls, possessing good points, and some respectable young stock. Only two cows were presented.

Of sheep, there was a superior show, mostly from the towns of Lyme and Hanover. A few pens of swine, Suffolks and crosses, were presented.

The plowing was admirably done, and was worthy of all praise.

An excellent address was given by Joseph Sawyer, Esq., of Piermont, who was followed by Mr. Adams, of Manchester, after which the following premiums were announced:

PREMIUMS AWARDED.

O. Pinneo, Hanover, best grafted sour apples,	$0 50
" " " " " sweet "	50
O. K. Porter, Lyme, best native apples,	1 00
J. B. Rood, Lyme, best peck native pears,	1 00
S. Bixby, Lyme, best peck grafted pears,	50
W. Hosford, Orford, best variety Isabella grapes,	50
A. Smith, Hanover, best peck onions,	50
Robert Latham, Lyme, best peck beets,	50
Dr. A. Smalley Lyme, best peck Carter potatoes,	50
Freeman Josselyn, Lyme, best peck carrots,	50
Jere. Runnels, Lyme, best peck peas,	50
Charles Kent, Lyme, best peck beans,	50
Daniel S. Colby, Lyme, best 5 squashes,	50
John Dimick, Lyme, best 5 pumpkins,	50
Robert Latham, Lyme, best 6 watermelons,	50
P. Holt, Lyme, best indigo blue potatoes,	50
John Hazleton, Orford, best Strickland plow,	2 00
Mrs. M. W. Cutter, Hanover, best bed quilt,	1 00
Mrs. Hezekiah Fuller, Orford, second,	25
F. D. Slade, Hanover, bed quilt,	25
Almira Spencer, Hanover, second,	25
M. W. Cutter, Hanover, woolen mittens,	25
Mrs. Alden Ford, Orford, ladies' linen hose,	25

Mrs. Alden Ford, Orford, woolen socks,	$0 25
M. M. Fellows, Hanover, gent's socks,	25
" " " ladies' woolen hose,	25
L. M. Cook, Lyme, ladies' wrought skirt,	25
Miss Mary F. Kent, Lyme, best wrought handkerchief,	50
Mary Jane Dimick, Lyme, scarf,	25
L. M. Cook, Lyme, chair tidy,	25
Mrs. Mary F. Camp, Hanover, wrought collar,	25
Elizabeth Camp, Hanover, card basket,	25
Eunice M. Hewes, Lyme, wrought under sleeves,	50
Mary Cutting, Lyme, ornamental needle work, (cottage,)	25
Sarah Wait, Lyme, ottoman cover,	50
Wm. Howard, Orford, second,	25
Mrs. Chester Davidson, Lyme, lamp mat, raised work,	50
Miss Rosella Porter, Lyme, lamp mat,	25
Mrs. J. N. Kent, Lyme, lamp mat,	25
Mrs. L. M. Cook, Lyme, wrought shawl,	50
Mrs. M. W. Cutter, Hanover, table spread,	50
Miss Sarah Riley, Orford, wrought collar,	50
Mrs. F. D. Slade, Hanover, crayon painting,	1 00
Maury Allen, Lyme, second,	1 00
Miss Lavinia Turner, Lyme, third,	50
Miss Mary Allen, Lyme, polychromatic,	1 00
Mrs. A. W. Smith, Hanover, 2 vases artificial flowers,	1 00
C. H. Dana, Lebanon, seed planter,	1 00
S. Dimmick, Lyme, best stone cutting,	2 00
" " " " marble cutting,	2 00
Charles Kent, Lyme, cottage bedstead,	1 00
John F. Gilbert, Lyme, best cheese,	3 00
Adna Storrs, Hanover, second,	2 00
Samuel T. Slade, Hanover, third,	1 00
F. D. Slade, Hanover, best tub butter,	3 00
Asa Warren, Lyme, second,	2 00
C. Kent, Lyme, third,	1 00
Dr. A. Smalley, Lyme, best honey,	1 00

John S. Kent, Lyme, best tub sugar,	$1 00
Daniel Merrill, Orford, second,	50
Miss Sarah Fellows, Hanover, best specimen patching,	2 00
Miss Harriet Franklin, Lyme, second,	1 00
Mrs. Sarah P. Chase, Hanover, best specimen darning,	2 00
Mrs. Sarah Fellows, Hanover, second,	1 00
Royal Storrs, Lyme, working oxen, 1st premium,	5 00
John Hazelton, Orford, second,	3 00
Asa Camp, Hanover, best pair four years old,	3 00
Royal Storrs, Lyme, second,	2 00
John Hazelton, Orford, third,	1 00
Wm. Cutting, best three years old,	3 00
Francis W. Converse, Lyme, pair 2 years old,	1 00
John Hall, Lyme, best cow,	3 00
Jeremiah Runnels, Lyme, second,	1 00
F. D. Slade, Hanover, best 2 years old heifer,	1 00
John Goodell, Lyme, best fat cow,	1 00
J. Conant, Lyme, best buck,	5 00
Edward Huntington, Hanover, second,	2 00
" " " best 5 ewes,	2 00
James L. Cook, Lyme, best 5 ewe lambs,	2 00
George Dewey, Hanover, second,	1 00
Apollos Perkins, Lyme, best boar,	2 00
D. C. Churchill, Lyme, best spring pig,	1 00
Dr. A. Smalley, Lyme, second,	50
E. P. Snow, Lyme, best sow and pigs,	2 00
Thomas Lambert, Lyme, second,	50
Amos Woodward, Hanover, best mare and colt,	5 00
A. Perkins, Lyme, second,	2 00
J. Hazelton, Orford, best gelding horse,	2 00
C. Gates, Lebanon, best pair matched horses,	3 00
M. Fellows, Hanover, best 2 years old stud colt,	1 00
C. Dimick, Lyme, best 2 years old mare colt,	1 00
Henry Sloan, Lyme, best 1 year old colt,	1 00
Thomas Kent, Orford, best pair team horses,	2 50
John Hazelton, Orford, best 3 years old stud colt,	1 50

A. D. Johnson, Hanover, best 3 years old mare colt,	$1 50
W. Whitney, trotting, two horses entered,	5 00
Asahel Gilbert, Lyme, best pair geese,	50
A. Warren, Lyme, best pair ducks,	50
D. Colby, Lyme, best lot fowls,	50
J. Hazelton, Orford, best plowing with oxen,	4 00
J. E. Woodbury, Orford, second,	3 00
E. T. Miller, Hanover, third,	2 00
R. H. Kent, Orford, best plowing with horses,	3 00
Town of Lyme, best ten yoke oxen,	5 00
E. K. Porter, Lyme, best acre corn,	5 00
O. K. Porter, Lyme, second,	2 00
A. Smith, Hanover, best acre wheat,	5 00
C. Dimick, Lyme, second,	2 00
O. K. Porter, Lyme, best acre oats,	2 00
John Sawyer, best half acre barley,	1 00
Chester Dimick, best acre potatoes,	3 00
D. C. Churchill, Lyme, best farm,	3 00

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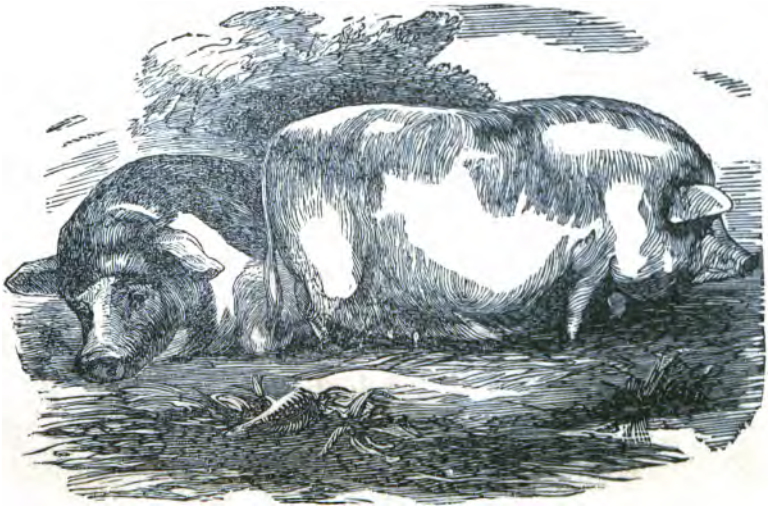

CHINESE HOGS. 393

SECRETARY'S REPORT.

The Secretary had arranged to give some report of his proceedings for the past year, including returns of agricultural statistics from about thirty towns in the State, his experiments in the distribution of seeds, his correspondence with agricultural associations in other localities, his efforts and success in establishing a library—and various other matters pertaining to the interest of the State Society and agriculture in general. But after a large portion of it was ready for the press and in the hands of the printer, it was found that its publication would swell the volume to an hundred pages beyond the limits assigned, and would delay its issue too long. It has consequently been determined to omit that report altogether. It will hereafter be printed either in a pamphlet form, or in the columns of our agricultural journal.

METEOROLOGICAL OBSERVATIONS,

FOR 1854,

MADE AT LONDONDERRY, N. H.,

Latitude 42 *deg.* 53 *min.*, *longitude* 71 *deg.* 20 *min.*

BY R. C. MACK.

The monthly mean of the thermometer, sky and wind, is made from three observations daily, viz.: at sunrise, 2 P. M., and 9 P. M. The figures in the column marked sky, indicate its mean degree of clearness—0 having denoted entire clearness; 1, a slight degree of cloudiness, and so on to 10, entire cloudiness. The force of the wind is also indicated in numbers, from 0, a calm, to 10, a hurricane. In making the observations on temperature, a standard thermometer of the Smithsonian Institute was used. The instrument is always in shade, at the north side of the house, and exposed to free air.

1854.	Thermometer.							
Month.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Range.	Remarks.
January,	15.	26.2	19.6	20.1	46	—16	65	Cold month.
February,	15.5	29.3	24.2	20.7	44	—13	57	Eight storms.
March,	22.4	35.8	29.2	30.1	66	11	55	Coldest March for 5 years.
April,	36.8	49.8	39.7	41.8	69	22	47	3d, flight of geese.
May,	52.8	68.	60.3	59.8	80	28	52	7th, first flowers.
June,	59.7	74.5	62.2	65.8	85	49	36	Cool and windy.
July,	68.4	77.2	70.5	73.	93	54	39	Dry month.
August,	65.2	78 1	66.1	72.1	88	52	36	Excessive drought.
September,	54.6	68.3	58.4	58.8	90	34	56	22d, great frost.
October,	44.2	61.3	49.7	51.5	78	28	50	Very pleasant.
November,	35.1	43.7	41.	38.5	60	12	48	1st, great rain of season.
December,	16.4	27.5	20.4	21.1	46	—12	34	Severe cold.
Y'rly means.	40.5	53.3	43.7	46.1	70	20	48	

Latest spring frost, May 7,
Latest autumnal frost, Sept. 14.
Latest spring snow, April 17.
First autumnal snow, Oct. 15.

First spring flowers, May 7.
Arrival of robin, March 12.
Leafing of the elm, May 8.
Apple bloom, May 23.

Rains, Snows, Sky, Wind, &c., for 1854.

	Rain Gauge.		Weather.					
Month.	Rain.	Snow.	Clear days.	Cl'dy days.	Sky.	Wind.	Storms.	Prevailing winds.
January,	2.77	8.5	2	4	5.7	1.5	5	North West.
February,	4.67	16.5	2	4	5.5	1.7	8	North West.
March,	3.00	2.5	2	7	5.4	1.6	3	North West.
April,	5.09	2.5	1	6	6.4	1.4	6	North West.
May,	3.04		2	3	5.3	1.8	4	South East.
June,	2.22		8	4	5.	1.3	3	North West.
July,	2.29		3	1	4.3	1.1	3	S. and S. E
August,	0.00		4	1	2.9	1.6	0	W. and N. W.
September,	5.50		13	3	3.1	1.4	5	N. W. and S. W.
October,	4.10		10	4	4.	1.	3	Calm.
November,	8.30	8.0	5	5	5.6	1.6	6	S. E. and S. W.
December,	3.90	25.0	2	2	5.7	1.3	5	North West.
	44.89	70.	54	44	4.9	1.4	51	

The above is a table of *aggregates*, except the columns "Sky" and "Wind," which are means.

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